



First Aero Weekly in the World

Founder and Editor: STANLEY SPOONER

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DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:

- July 29–31 Jacques Schneider Cup, Venice
- Aug. 27 ... Entries Close for Coupe Deutsch
- Sept. 4–11 Brescia Races
- Sept. 10 ... Pulitzer Trophy, Detroit, U.S.A.
- Sept. 18 ... Gordon Bennett Balloon Race
- Sept. 25 ...
- Oct. 2 Aero Exhibition, Prague
- Oct. 1 ... Coupe Deutsch de la Meurthe
- Nov. 12–27 Paris Aero Salon

EDITORIAL COMMENT

S a public spectacle the race for the Aerial Derby last Saturday was quite a success. Londoners turned out in their ten thousands to view the race from various vantage points around the course, and, generally, it may be said that the race was not by any means a bad advertisement for aviation. We should like to make it quite clear that we regard all such events as this in the light of desirable publicity for the movement,

The Aerial Derby and that if they did nothing more than to cause the public to talk aviation and aeroplanes for a week before the race, they would justify their holding. From that point of view the Aerial Derby of 1921 was a success. It is regrettable that it is impossible to say the same of the race as a producer of new types or from the standpoint of its possible influence on development. Frankly, it was disappointing that so few new machines were entered and that these, with a solitary exception, failed to materialise.

We do not blame anybody for this. All concerned with the race did their level best to make it a success, and if it was not all that might be desired we have to look farther than officials or contestants for the reasons. The fact of the matter is that the meagre sums available for prize money made the race hardly worth competing for, viewed from the business standpoint of the constructor. It would be a pity if we conveyed the impression by saying this that there is no sport in aviation. This is far from being the case, but it must be remembered that it is a very expensive thing to construct and tune up new types for the express purpose of competing in such a race as the Aerial Derby, which is not a truly international event and where the honour of the country is not involved. Where it is, there is never any lack of entries by people willing and anxious to uphold the prestige of British aviation at their own charge and cost.

The Aerial Derby is a splendid event, from all points of view. It offers an opportunity of a spectacular race for the public to see; it affords a fine demonstration of the qualities of reliability and speed of modern aircraft; and it must have a very beneficial effect on the development of the fast

commercial machine. Therefore, it ought to be made a permanent fixture, but we fear its interest will soon flag and ultimately disappear, unless it is possible to make it more attractive to those to whom we have to look for entries. Again, let it be clear that there is not the slightest suggestion that those who refrained from entering or who, having entered, failed to send their machines to Hendon, ought to have done more to make the race a success. It cannot be afforded in these times unless there is a reasonable chance of recouping at least a part of the expense incurred, in the shape of prize money in the event of success.

Is not there among all the wealthy sportsmen of the country one who will do as much for aviation as Lord Northcliffe has done already? He, as our readers know, has already given three separate sums of £10,000 each as prizes for the London-Manchester flight, the Circuit of Britain, and the cross-Atlantic flight, beside many smaller prizes for other aerial events. He has done all and more than could have been expected. Now we want someone to succeed him as the patron of aerial sport. Not sport alone for its own sake, but for that of the future development of aircraft and aviation, which depends so much on the lessons to be learnt in competition.

The
Varsity
Race

The race between teams of S.E. 5 machines, representing Oxford and Cambridge, was quite an interesting event of a description which should

be encouraged. It was a thoroughly sporting race, between machines of identical design and construction, and of the same power—an event in which skill in tuning up beforehand and superior airmanship in the race were the main factors making for success.

Aerial racing might with advantage be divided into two distinct categories—the purely speed event for all and every type of machine, and the team race similar to the first of the Inter-University contest. The first must have a very great effect upon development, because it encourages high speeds, combined with reliability, which spell efficiency. There are some who think the purely speed type of contest ought not to be encouraged. They apparently take their stand upon the theory that as it is not the very high speed machine which is required for commercial purposes, but rather the one of comparatively low speed combined with great weight-carrying capacity, and that it is the latter type which requires encouragement. That is perfectly true, up to a point. It must, however, be remembered that what we are striving for is efficiency and reliability. When we have achieved the maximum in these two qualities we can apply it how we like—either to the very light, fast machine or to the slower cargo carrier.

In air racing, as in motor-car racing, invaluable lessons are learned by stressing everything to its ultimate limit. It teaches us more about materials and their application to construction than we could learn in any other way—how to get lightness here and why it is necessary to strengthen there, and this applies to engines and machines equally. We had nearly seven years of war to take the place of racing, and we learned in that time more than would have been found out in a quarter of a century if there had been no war. To give up racing, or to concentrate on the racing of old types now, would be to stand still.

When we have learned from the speed machines, we turn then to team work as a means of teaching pilots and ground staff how necessary it is to maintain the highest degree of efficiency of man and machine. It seems that there can be no better way of doing this than by team competitions such as those which now form the text. Obviously, where all components of a team are identical the most efficient unit must show best in performance. To encourage efficiency there is nothing like such events, and that is why we think there ought to be many more of them.

German
Aviation

Germany is proverbially thorough in all she does, and there are strong indications that this characteristic is to be applied to the future of aviation. Keen interest is being taken in the subject, and it seems to be realised that in order to develop properly it is essential that the scientific side, as well as the practical, must receive close attention. An important memorandum dealing with the subject of aeronautical instruction at the Universities has recently been worked out by the Committee for University Questions of the Hanover Technical College, and contains a number of important suggestions which, it is submitted, must be carried out if German aviation is to be developed on a similar scale. It suggests:

That a chair of aeronautics and aircraft construction be introduced as soon as possible at at least one Prussian technical college.

That these chairs be equipped with laboratories and practice installations, and, by means of adequate assistance from the State, be placed in a position to guarantee a thorough experimental and, where necessary, also a practical training for the aeronautical engineers of the future.

That the existing institutions for instructional and research purposes be developed, and in the event of their being united with a chair, that a special current grant be made.

That relations with the research and test laboratories outside the university be furthered by means of State grants, so that the museums and installations may be utilised in the university course.

That, above all, aviation should take its rightful place in university, and continuation courses for engineers and teachers, and be included in the normal curriculum (applied physics, etc.) more than hitherto.

All of these suggestions are admirable, and are well worthy the close attention of our own University authorities. Not that the latter are unconscious of the importance of the subject. Manchester is doing a great deal already. Cambridge is also not behindhand. But much more is required in the way of technical training on the lines laid down in this German memorandum. Every one of our Universities ought to have a chair of aeronautics associated with its scientific branches of instruction, properly equipped for experiment and research, and we look forward to the time in the near future when this will be an accomplished fact. At the present moment the difficulty is in finding money for the purpose. The Universities themselves cannot find it and must look outside for the necessary finance. There must surely be another Sir Basil Zaharoff somewhere with interest enough in aeronautics to desire that the subject should be given a proper chance at the Universities. It costs a substantial sum to endow a chair, but it is well worth while.

The
Airships

The situation as regards the doomed airships seems to become a little obscure. On the one hand it is stated that the Cabinet has not altered its de-



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THE AERIAL DERBY : Photographs of the starters. Altogether twelve machines started in the Aerial Derby, out of twenty entered. Accidents during tests prevented five from being at Hendon in time for the race. Engine trouble accounted for two more, and one machine was not finished until the evening before the race, and was not tested. The following are the photographs of the starters : 1. Avro Baby two-seater ; 2, Avro Baby single-seater ; 3, Sopwith Pup ; 4, Bristol Tourer ; 5, Avro-Viper ; 6, Sopwith Camel ; 7, S.E. 5A. (Two of these machines were starters, but as they were identical we only publish photograph of one) ; 8, Nieuport Nieuhawk ; 9, Bristol Bullet ; 10, Martinsyde F. 4 ; 11, the Mars I, winner of the Derby and first in the Handicap.

cision to scrap these craft on the 1st of August. On the other, the Dominion Premiers are taking a very close interest in the scheme submitted by the Agent-General for Tasmania for making use of the airships to establish an Empire air mail service, and report has it that they are very favourably disposed towards the idea. There is another report going the rounds, which is to the effect that so convinced of the possibilities of the airship are the Americans that they are only waiting until the end of the month and the handing over of the ships to the Disposal Board to purchase them out of hand.

We do not think, however, that it will come to this. The Empire Premiers have got as far as the appointment of a committee, representing the Governments concerned, to report on the cost of erecting mooring masts, providing bases and fuel supplies, upkeep, commissioning and operating the existing

fleet of airships for purposes of Imperial air communications, with special reference to the routes between England, India, Africa, Australia and New Zealand, and on services by means of aeroplanes. There will be no difficulty in securing all the required information. This has long ago been collected and collated by the Airships Branch of the Air Ministry, and is very complete indeed. The operating costs of the ships are known to the last fraction, and those most closely concerned are perfectly convinced that the ships can be made to pay commercially if they are given a chance. It begins to look now as though they would be given the opportunity to show what they can do, though there is still uncertainty. As a matter of fact, it has been stated categorically in one quarter that the airships are not to be scrapped, and in this connection an official communiqué which appears in this issue is a hopeful sign of its correctness.



THE OXFORD AND CAMBRIDGE AIR RACE : At top, the S.E. 5A machines lined up before the start. In the centre photograph the machines are seen getting away, and below the Home Secretary, Mr. Shortt, is presenting the Cups to the winning Cambridge Team, Messrs. H. A. Francis, R. K. Muir, and W. S. Philcox.

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THE SIXTH AERIAL DERBY AND THE OXFORD v. CAMBRIDGE AIR RACE

SOMEHOW or other Aerial Derby Day last Saturday, was disappointing. Compared with previous Aerial Derbys it presented a sort of tameness, and except for one or two outstanding features, we went away after the "show" with no more impression on our minds than would be left after visiting a very ordinary flying meeting—which was by no means the case previous years. No doubt this was due to the fact that out of a representative entry of twenty machines, eight scratched, the majority of which were favourites or "dark horses." Of the twelve starters—only one of which, the Napier-Lion-Mars I, claiming any special interest—seven completed the full course.

Then, the attendance, too, was poor indeed, and seemed to consist mainly of those directly interested in or connected with

items of interest connected therewith, so we will get going on actual events themselves.

Shortly after 2 o'clock Group-Capt. H.R.H. the Duke of York arrived, and having seen the Oxford and Cambridge teams well on their way, had, unfortunately, to leave to fulfil another engagement.

THE INTER-UNIVERSITY AIR RACE

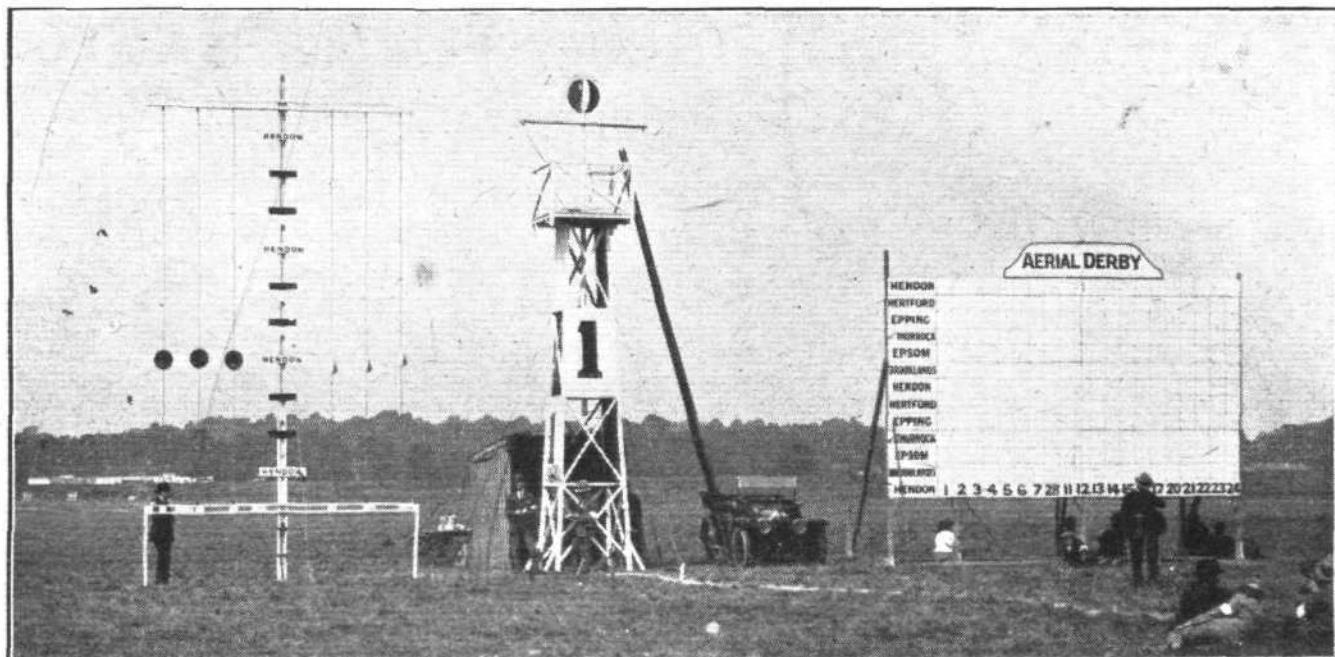
The first Oxford and Cambridge Air Race was undoubtedly an event, and was an unqualified success. It certainly convinced us—bearing in mind also the splendid standard Avro race at the last Aerial Pageant—that the establishment of "one-design" classes for aeroplane racing, much after the style of one-design boat races where all the boats are built to one design and specification (scantlings, sail areas, etc., being the same for all the boats), would provide some really good sport which need not be very costly. The two teams, each consisting of three "S.E.5a's" (220 h.p. Wolseley-Viper), lined up near the centre of the aerodrome, facing the enclosure. Oxford was represented by A. R. Boeree (Oriel), No. 25; N. Pring (New), No. 29; and A. V. Hurley (Keble), No. 31; Cambridge by H. A. Francis (Caius), No. 32; W. S. Philcox (Caius), No. 30; and R. K. Muir (St. Catharine's), No. 26. The course consisted of three laps of the circuit Hendon-Epping-Hertford-Hendon, a distance of approximately 129 miles. In starting one of the Oxford pilots got away before the flag dropped, and had to circle back and recross the line, thus falling a little way behind the others, who got away fairly evenly. The Cambridge team climbed high at the start, possibly in the hope of finding cooler air, whilst the Oxford remained low down. They all made for the direction of the Edgware Road, and turning towards Epping were soon out of sight. About 20 minutes later they were observed returning to Hendon all in a bunch. The first to cross the aerodrome was No. 30 of the Cambridge team, with another Cambridge man, No. 26, some three seconds behind. No. 25 (Oxford), followed six seconds later, and next the third Cambridge man, No. 32, four seconds behind, with only one second separating him from No. 29 (Oxford). No. 31 (Oxford) brought up the rear five seconds later. After rounding No. 1 pylon they all made for the second journey to Epping, the first turning point. At the end of the second lap Cambridge obtained 1st, 2nd and 3rd places, and No. 30 was still leading. Their order in crossing the mark, and the number of seconds intervening between each man, was as follows:—No. 30, No. 26 (14), No. 32 (9), No. 29 (4), No. 25 (4), No. 31 (7). In the finish the Cambridge team maintained the same order, whilst No. 31 (Oxford) got ahead of No. 25. No. 29 had to land at Enfield. Cambridge thus won the first of what we hope will be a regular annual Inter-University fixture. The complete times for the first and second laps and the finish are given in the accompanying table. The pilots made "priceless" landings at the conclusion of the race.

THE AERIAL DERBY

In the meantime the machines were being lined up for the Aerial Derby, and before the University teams arrived home, the first on the list, Capt. Tully's Avro Baby 2-seater (35 h.p. Green) was sent on its way prompt to time (3 h. 32 m. 36 s.). Full particulars and times of the competitors are given in our table. The second away was Sporty Bert Hinkler, on a brand new Baby single-seater, but he did not seem to climb particularly well and wobbled a bit when over the sheds—

RESULT OF FIRST OXFORD V. CAMBRIDGE AIR RACE

No.	Pilot.	First lap.			Second lap.			Third lap.			Aggt. Points.		
		Position.	Time.	Speed.	Position.	Time.	Speed.	Position.	Time.	Speed.			
Oxford Team													
25	A. R. Boeree	..	3	m. s.	27 43	110.4	5	m. s.	49 13	114.63	5	h. m. s.	117.46
31	A. V. Hurley	..	6	27 53	109.74	6	49 20	114.32	4	1 9 55	117.56	9	
29	N. Pring	..	5	27 48	110.07	4	49 9	114.75	Down Enfield.				
Cambridge Team													
26	R. K. Muir	..	2	27 37	110.82	2	48 56	115.26	2	1 9 39 $\frac{1}{2}$	118		
32	H. A. Francis	..	4	27 47	110.13	3	49 5	114.90	3	1 9 48	117.76	6	
30	W. S. Philcox	..	1	27 34	111	1	48 22	115.81	1	1 9 20 $\frac{1}{2}$	118.55		



THE AERIAL DERBY AND OXFORD AND CAMBRIDGE AIR RACE : Marking apparatus by which the public were able to follow the progress of both events.

no doubt the usually-so-well-behaved Green was sulky and gave him trouble. Most of us were really sorry to hear a little later than "Bert" was down at Sidcup, for we wanted to see him finish off a third Derby (and perchance win it) on this splendid miniature combination.

The next on the list was Capt. A. H. Curtis, who had sportingly entered a "B.E.2e" (90 h.p. R.A.F.), but he did not start, it being stated that he did not consider his time allowance sufficient. If this was so, we must say that, judging by its terrific speed when the "B.E." went up later during the afternoon, he certainly appeared to have cause to be dissatisfied. The next starters, therefore, were D. L. Forestier-Walker on the Sopwith Pup (80 h.p. Le Rhone), and A. S. Butler, on his Bristol Tourer (240 h.p. Siddeley-Puma), who both received the same handicap allowance and got away together, Forestier-Walker flying rather low. A few minutes later Tait Cox made a fine take off on the Avro-Viper, then came Capt. H. S. Broad on a Sopwith Camel (130 h.p. Clerget). The next "man" was a pair, a simultaneous start being made by Lieut. W. H. Longton and F. J. Ortweiler, both on "S.E.5a's" (220 h.p. Wolseley Viper). Longton was flying one of the 'buses (No. 28) which should have flown in the University race, but which

gave trouble at the last moment. Ortweiler's 'bus was No. 30, which flew so well in the University race. Both got away in fine style, then at intervals of about five minutes were dispatched Lieut. J. Noakes (the Crazy Flyer) on the Nieuhawk (300 h.p. A.B.C. Dragonfly), Maj. E. L. Foot on the Martinsyde "F.4" (300 h.p. Hispano-Suiza), and C. F. Uwins on the Bristol Bullet (400 h.p. Jupiter). The departure of these machines looked more like business, and one greatly regretted the bunch of non-starters which should have come in hereabouts. These were, poor Harry Hawker and the Goshawk, the fascinating combination of F. T. Courtney and a pair of Alula wings—the Martinsyde fuselage being a more or less integral part of the former—Bernard de Romanet on a "Blanc Mange," which had apparently "subsided" in the heat and left B. de R. roaming around looking for a substitute (the B.A.T. "Crow" could not be got ready in time); Maj. Draper's B.A.T. Bantam; Maj. Westgarth Heslam's Avro-Lion, and Sadi Lecointe's Nieuport-Delage.

However, the deputy "scratch" machine was well worth seeing. This was the Gloucestershire Aircraft Co.'s Mars I, designed by H. P. Folland and flown by J. H. James. We have something to say about this machine elsewhere. In order



THE SMILES THAT WON'T COME OFF : Mr. J. H. James takes his brace of pots and short congratulations from the Home Secretary. On the left the Aerial Derby Cup being handed over to Mr. James by Mr. Shortt, and on the right the Derby Handicap Cup ditto. Gen. Sir S. W. Brancker reflects the general satisfaction.

to obtain as long a run as possible James took the machine well behind the starting line. In spite of some criticism overheard on the 'drome, we consider James' take-off was really scientific, and a magnificent bit of piloting. He started off into the wind, then as he gathered speed, and the drift component became small in proportion to that of forward speed, he veered slightly to the right in order to give himself the benefit of a longer run, should this be required—it must be remembered he was taking off in the direction of the enclosures. He touched lightly once or twice, with a very slight side drift on, but was by then already going so well that had the drift heeled him over he would have had ample lateral control to effect a "save." Mars I was soon out of sight, and as we made our way back to the enclosure a machine was observed returning from the direction of Brooklands. At first, feeling somewhat pessimistic, we thought it was James returning, but as the machine drew near we recognised the graceful lines of the Martinsyde, which was giving a good impersonation of the Aerial Pageant "coming down in flames" stunt. Before landing, Foot gave us a few pretty aerial gambols. Engine trouble was the cause of his early retirement.

A few minutes before 5 o'clock No. 1, Tully's Avro Baby, arrived and hurtled off again on his second round, but unfortunately was forced to descend, we believe, at Brooklands. We were all very sorry that both the Babies were out of it—but then everyone knows that hot weather is *very* trying for babies! Forestier-Walker also had to abandon the race, after completing the first circuit, as he was feeling unwell. On landing he struck a wicked bit of the bad ground and brought the Pup on its nose, fortunately without serious hurt to himself. Seven minutes past five Ortweiler came in on the "S.E. 5," but appeared to cut round the turning points rather short. Butler on the Bristol Tourer followed him by a few seconds and made a fine banked turn round the mark before starting on his second lap. Longton came in next three minutes later, with Noakes and Tait Cox, separated by 20 seconds, two minutes behind.

In the meanwhile some of the 'Varsity boys treated us to some pretty stunt flying on the "S.E. 5a's"—the only local amusement put up for our benefit, apart from selections by the R.A.F. band.

After an interval of eight minutes James honoured us with his presence for a fraction of a second or so, having just passed Broad on the Sopwith Camel, who crossed the 'drome one minute later. One more minute brought in the last remaining man, Uwins, on the Bristol Bullet. We then took shelter from the blazing sun for a few minutes in the shadow of the "B.E.2e," which was flying overhead, after which we waited on the 'drome for the arrival of the winner. Just before six o'clock two machines hove in sight, and as they arrived over the aerodrome, proved to Ortweiler's "S.E. 5a" and the Mars I. The former made straight for No. 1 pylon, which he rounded sharply, whilst James flew fairly wide a few seconds behind. It was obvious that James had won the fastest time, but Ortweiler was certainly in front as regards the handicap. However, as it turned out, James won both events, as Ortweiler was disqualified for not rounding the home marks correctly. Incidentally, this, in spite of promises for better arrangements, gave the "bookies"—who were present in full force—an opportunity to make trouble, so many "winners" lost, the theory of the bookies being "We pay on first past the post."

"Jimmy" lost no time in landing—and a priceless landing it was. It must be admitted we were a trifle apprehensive beforehand, but were soon at ease, as he glided in with extraordinary slowness and made a beautiful three-point "atter-sissage" with prop stopped, rolling but a comparatively short distance across the ground. Needless to say he was soon surrounded by a crowd of well-wishers, cine-men, and photographers, and it was only with difficulty he was rescued by Mr. Folland and friends and conveyed in triumph to the paddock, where he received a very enthusiastic greeting—especially from *someone!* After congratulations all round, Sir William Joynson-Hicks (Judge) announced the result officially, and called upon the Home Secretary, Mr. Shortt, to present the prizes (trophy and £400 for the Derby, and trophy and £200 for handicap).

Then there was more cheering and congratulations. By this time the other competitors had returned—how we failed to notice in the excitement, but our tables will tell the rest.

In addition to the first prizes, above-mentioned, there was a second prize of £100, and a third prize of £50, both for the Handicap event. The former went to Lieut. Longton, and the latter to A. S. Butler—whose performance was a most sporting and much appreciated one. All these prizes, as well as the silver cups presented to each member of the Cambridge team, were put up by the Royal Aero Club.

RESULTS OF SIXTH AERIAL 'DERBY AT HENDON, JULY 16, 1921.

No.	Pilot.	Machine.	Engine.	Handicap allowance.	Time of Starting.	First lap.		Second lap.		Total Time.	Speed.	m.p.h.	h. m. s.	Handicap Time.	Fastest Time.	Position.							
						h. m. s.	h. m. s.	h. m. s.	h. m. s.														
1	Tully	Avro "Baby" (2-seater)	35 Green	..	1 15 42	3 32 36	1 21 31(1)	73.63	Down	105.97	0 55 24	108.27	1 52 1	107.12	2 29 7	4	3						
2	Hinkler	Avro "Baby" ..	35 Green	..	1 7 24	3 40 54	4 11 12	Landed and crashed at Hendon.	103.43	0 59 2	101.62	1 57 3	102.51	2 30 33	5	5							
4	Forestier-Walker	Sopwith "Pup"	..	80 Le Rhone	0 37 6	4 11 12			94.9	1 2 16	96.33	2 5 30	95.61	2 35 3	6	6							
5	Butler	Bristol "Tourer"	240 S.P.	..	37 6	4 11 12	0 56 57 (3)	105.97	0 55 24	108.27	1 52 1	107.12	2 29 7	4	3	3							
6	Tait Cox	Avro "Viper" ..	180 W.V.	..	0 33 30	4 14 48	0 58 0	103.43	0 59 2	101.62	1 57 3	102.51	2 30 33	5	5	5							
7	Broad	Sopwith "Camel"	130 Clerget	..	0 30 3	4 18 15	1 3 15	105.97	1 2 16	96.33	2 5 30	95.61	2 35 3	6	6	6							
28	Longton	"S.E. 5a" ..	220 W.V.	..	0 28 6	4 20 12	0 50 18	116.83	0 50 6	119.73	1 40 25	119.5	2 31 3	3	3	2							
30	Ortweiler	"S.E. 5a" ..	220 W.V.	..	0 28 6	4 20 12	0 47 23 (2)	126.62	0 49 23	121.46	1 36 46	123.99	2 4 52	Dismqualified.									
32	Noakes	"Nieuhawk" ..	300 A.B.C.D.	..	0 17 54	4 30 24	0 42 4	142.6	0 42 4	142.6	Returned	engine trouble.											
15	Foot	Martinsyde "F.4"	300 H.S.	..	0 12 18	4 36 0	0																
17	Uwins	Bristol "Bullet"	400 B.J.	..	0 7 42	4 40 36	0 41 59	142.91	0 42 53	139.88	1 24 52	141.38	1 32 34	2	2	4							
21	James	Mars I. ..	450 N.L.	..	0 4 42	4 43 36	0 36 46	163.16	0 36 41	163.83	1 13 28	163.34	1 18 10	1	1	1							

A.B.C.D. = A.B.C. "Dragonfly."
W.V. = Bristol "Jupiter."
S.P. = Siddeley "Puma."
H.S. = Hispano-Suiza.
W.V. = Wolseley "Viper."

N.L. = Napier "Lion."
Note.—Eight Non-Starters.



Mr. J. H. James, fed up with the attentions of the cine-man, makes a bolt of it to (on the right) the protection of the designer of the winning aeroplane (Mr. Folland), Mr.

Mason, etc.

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THE MACHINES

[For pictures see p. 483].

Apart from the Mars I, which won both the Derby and first place in the Handicap, none of the new machines turned up for the race. This was ascribable to various causes, mostly too short time in which to carry out tests—and also several crashes. In consequence, the majority of the machines which started were of types already well known to readers of FLIGHT. However, as has been our custom in previous years, we will give a brief description of the starters, so that those who do not happen to be familiar with all the machines may get an idea of their characteristics.

The Avro Babies.—These two machines are, generally speaking, very similar to those which have done so well in previous races. No. 1, flown by Capt. Tully, is a two-seater of slightly larger dimensions than the standard single-seater Baby, but having exactly the same outline design and being fitted with the same type 35 h.p. Green engine. The fuselage is longer than that of the standard type, and the wings are of larger span and area to keep the landing speed down to the same figure.

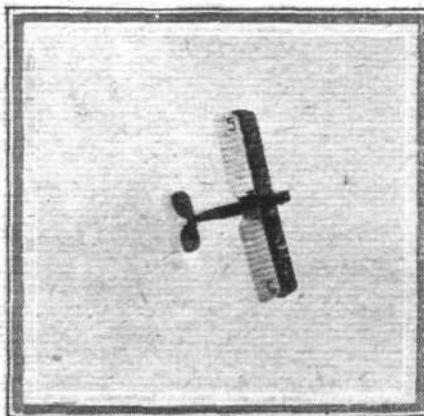
The single-seater flown by Bert Hinkler is fitted with somewhat smaller wings than the standard, notably as regards the lower plane, which is of smaller span than the top. The ailerons taper towards the tip, as is now standard Avro practice, and this little machine looked very pretty indeed with her aluminium paint and pleasing outline and proportions. The machine did not do very well in the Derby, Hinkler having to land at Sidcup, but its reputation is already so well established by the magnificent flights made by Hinkler—including the London-Turin non-stop and the 800 miles non-stop flight in Australia—that this mishap should in no way be allowed to detract from the

merits of what is undoubtedly one of the finest, if not indeed the very finest, low-power machine in the world.

The Sopwith Pup, flown by Forestier-Walker, is of a type which was at one time the favourite small machine during the earlier part of the War. With an engine of 80 h.p. (le Rhone), it has a good performance and handles remarkably well, being capable of all manner of stunts. In its time it was a very efficient machine, and even to this day, except for a rather extravagant rotary engine, does not make a bad sporting machine.

The Bristol Tourer, owned and flown by Mr. A. S. Butler, is the same machine on which Mr. Butler flew to the Riviera and back. It is a development of the famous Bristol Fighter, which to this day is one of the finest two-seater machines in the world. In order to get better economy for peaceful touring purposes, this machine has been fitted with a 240 h.p. Siddeley Puma engine. In consequence, it is not quite so fast as the Fighter, but it still has a very good performance. Mr. Butler handled it extremely well in the race, his cornering around No. 1 pylon on starting the second lap being very pretty indeed. We only wish there were more sportsmen like him who would help along aviation in this practical manner.

The Avro-Viper, flown by Mr. L. R. Tait Cox, is more or less a standard Avro biplane, except for the fact that it is fitted with a Wolseley Viper instead of the usual rotary engine. The speed is somewhat higher than that of the standard machine, the Viper giving considerably more power although being somewhat heavier than the le Rhones with which the standard machines are fitted. There was some anxiety in the race regarding the petrol supply, which



THE AERIAL DERBY: On left, Capt. Tully (No. 1) starts on the Avro Baby two-seater, and on right, A. S. Butler on the Bristol Tourer makes a sharp turn rounding the pylon starting for his second circuit.

was thought to be none too plentiful, the tanks being the standard ones. However, the petrol lasted and Cox got through without mishap.

The Sopwith Camel, flown by Capt. Broad, was of the type which followed the production of the Sopwith Pup. It is a slightly larger machine than the Pup, and is usually distinguished from the latter by the fact that it has a straight top plane and a pronounced dihedral on the lower plane.

The S.E.5a.—Two of these machines were entered in the Derby as well as flying in the Varsity race. The S.E. 5 was designed at the Royal Aircraft Establishment at Farnborough, and was built in very considerable numbers during the War, where they proved very good machines for fighting, being fast and capable of rapid manoeuvres. Incidentally, it is of interest to note that Mr. H. P. Folland, who designed the Mars I which won the Derby, also had a considerable share in the design of the S.E.5. The machines used in the Derby and in the Varsity race were obtained from the Aircraft Disposal Co., and it speaks well for the condition of this firm's machines that the six taking part in the University race were so very evenly matched, while two of them flew and put up a good performance in the Derby, after having flown well over 100 miles in the previous race. The Wolseley Vipers performed excellently.

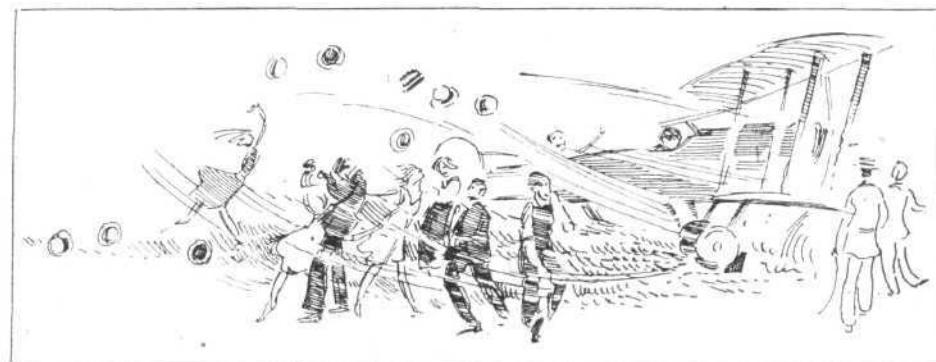
The Nieuport Nieuhawk.—This machine, flown by Noakes, is, generally speaking, similar to the famous Nieuport Night-hawk. It, also, is designed by Mr. Folland. The engine is an A.B.C. "Dragonfly" of 320 h.p., similar to that fitted in the Goshawk on which Hawker met his death. The machine is very fast, although not quite so fast as the Goshawk, which put up a speed record of 166.5 m.p.h. In a somewhat altered form, fitted with B.R.2 engines, a number of Nieuhawks, which in the altered form are known as Sparrowhawks, are being finished off at the works of the Gloucestershire Aviation Co. for Japan.

The Martinsyde F.4.—This machine, which was piloted by Major Foot, was the last military type to be produced by the Martinsyde firm during the War. Like all other machines turned out by that firm, it is a very pretty machine with a high performance. Fitted with a 300 h.p. Hispano-Suiza engine, the F.4 has a speed at ground level of 145 m.p.h. The first machine was designed and built in 1918, and had the War continued there is no doubt that the F.4 would have given the Germans something to think about. The machine is also credited with the extraordinarily good climb of 6,000 ft. in 3 mins. 40 secs. Small wonder, therefore, that the Martinsyde firm have had a good many orders for the F.4, or her later developments, from foreign governments and firms.

The Bristol Bullet.—The machine flown by Mr. Uwins is the same, as regards its fuselage and engine, as that entered and flown by him in last year's Derby. The wings have, however, been changed for a smaller pair, and several other alterations have been made in detail construction. The Bullet was first exhibited at the Paris Aero Show of 1919. One of the special features of this machine, it may be remembered, was that double spars were used, so as to give an exceptionally high factor of safety. This feature has been retained in the new wings, with the consequence that the machine is really needlessly strong. In other words, she is a good deal heavier than she need be. This proved somewhat of a handicap in the race, as full advantage could not be taken of the high power and light weight of the Bristol Jupiter engine. The fuselage had been better streamlined for the race, partly by a higher deck fairing behind the pilot, and partly by a different engine cowling. The latter has scoops behind the cylinders, instead of, as formerly, fairings covering up the rear face of the cylinders. This should assist materially in keeping the engine cool, and we understand that Mr. Uwins had no trouble in this respect. A feature which must have reduced the speed of the Bristol Bullet by some seven or eight miles per hour was the absence of a spinner over the propeller boss. We are informed that it was found impossible to get a spinner to stand up to the centrifugal stresses set up when the engine was running fast. Several spinners were tested but without success. As spinners do (sometimes) stand up to the work on other machines, this may appear somewhat surprising. It should be remembered, however, that in the case of the Jupiter engine the spinner has to be of very large diameter, with consequent very high speed at the circumference. The best way of attacking the problem would appear to be the use of a spinner of the form of those used on the Spad machines, in which the spinner is so mounted, on a ball bearing on the propeller hub, that it need not revolve with the propeller. This form, it is true, leaves a gap in the way of the propeller, but at any rate, it is probably more efficient than the enormous area presented by the Jupiter on the Bullet as flown in the Derby. There is not much doubt that the extra resistance was the main reason for the relatively inferior performance of the Bullet in the race. We feel certain that the machine is capable of better speed, once these minor points have been attended to.

The Mars I.—Owing to the fact that it is the only really new machine which entered in the Derby, as well as because of its winning both the Derby and first place in the Handicap, we think that a slightly more detailed description of this machine will be appreciated. This will be found on the next page.

A
TAIL PIECE.



An unexpected "zephyr" starts a race of a different type to the Derby.

Our New Under-Secretary for Air

ON Monday last it was officially announced that the King had been pleased to approve of the appointment of the Lord Gorell, C.B.E., M.C., to be Under-Secretary to the Air Ministry, in succession to the Most Hon. the Marquis of Londonderry, K.G.

This appointment was foreshadowed in FLIGHT last week.

Roland Gorell Barnes, the third Baron Gorell, is the second son of the first baron—the judge who was well known as President of the Probate, Divorce and Admiralty Division—and brother of the second baron (killed in action), whom he succeeded in 1917. He is 37 years of age. After being at Winchester and Harrow, he proceeded to Balliol College, Oxford. He was admitted a barrister of the Inner Temple in 1909, and a couple of years later became a member of the editorial staff of *The Times*.

Georges Kirsch Ascends to 10,600 Metres

AFTER an attempt on July 13 to improve on the height record, when he attained an altitude of 9,000 metres in

38 minutes at Bourget (800 metres short of his own record), Kirsch, feeling indisposed, decided to return to earth, the thermometer registering 50 degs. of frost.

He renewed his attack on July 15, and this time not only on his Nieuport got a greater ceiling than his previous record, but climbed to no less a height than 10,600 metres (34,770 ft., or over 6½ miles), thus well beating all world's records. At top the temperature registered was 69 degs. below zero. But, and here's the rub, the flight cannot be officially recognised as, under F.A.I. regulations, records must be made by ascending from and descending to the same aerodrome under official observation in both events.

Kirsch unfortunately had during his climb lost his bearings, and could not locate Bourget when he got nearer earth, and so, at last, identifying Champeaubert, near Montmorail, he made his landing there. However, therefore, one may admire the 1,500 extra feet attained by Kirsch, the official height must still remain with Major R. Schroeder, the American holder.

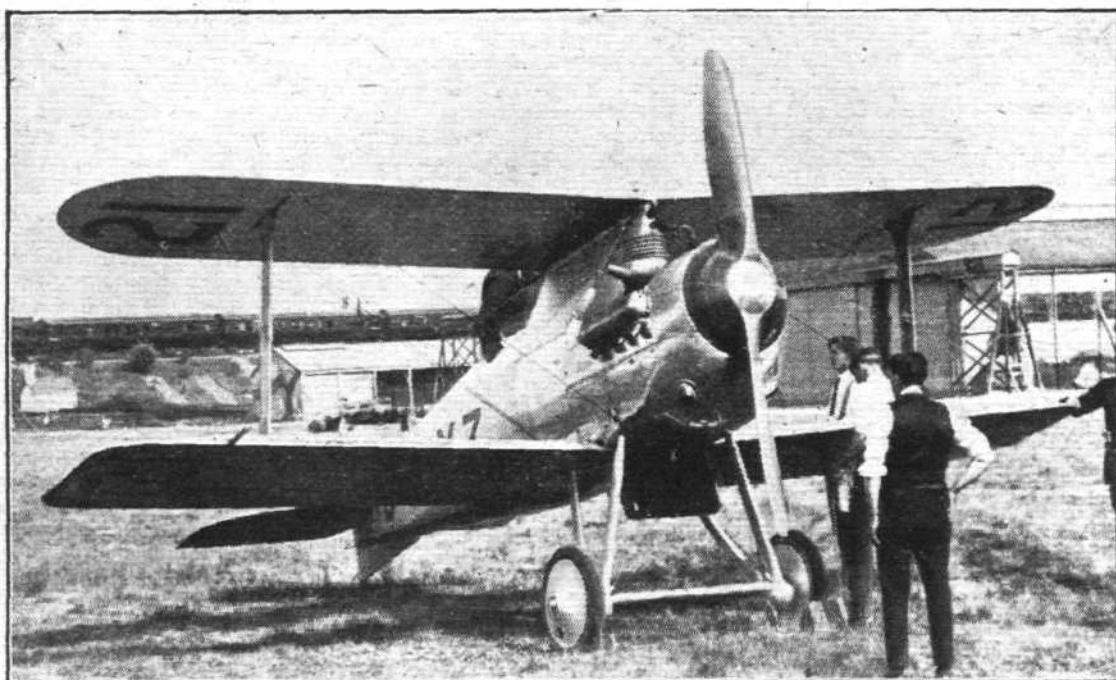
THE WINNER OF THE DERBY

Some Notes on the Mars I

As the only really new machine to start in the Derby at Hendon on Saturday last (July 16), more than usual interest attaches to the Mars I, designed by Mr. H. P. Folland and built by the Gloucestershire Aviation Co., of Cheltenham. With its 450 h.p. Napier "Lion" engine, the Mars I was the highest-powered machine in the race, and the manner in which Mr. Folland had managed to build such a relatively

If that contention is accepted then the Mars I is very much "right." The speed attained by it in the Derby proves it to be very fast, although we are convinced that it did not attain the maximum speed of which it is capable when properly tuned up and "cleaned up."

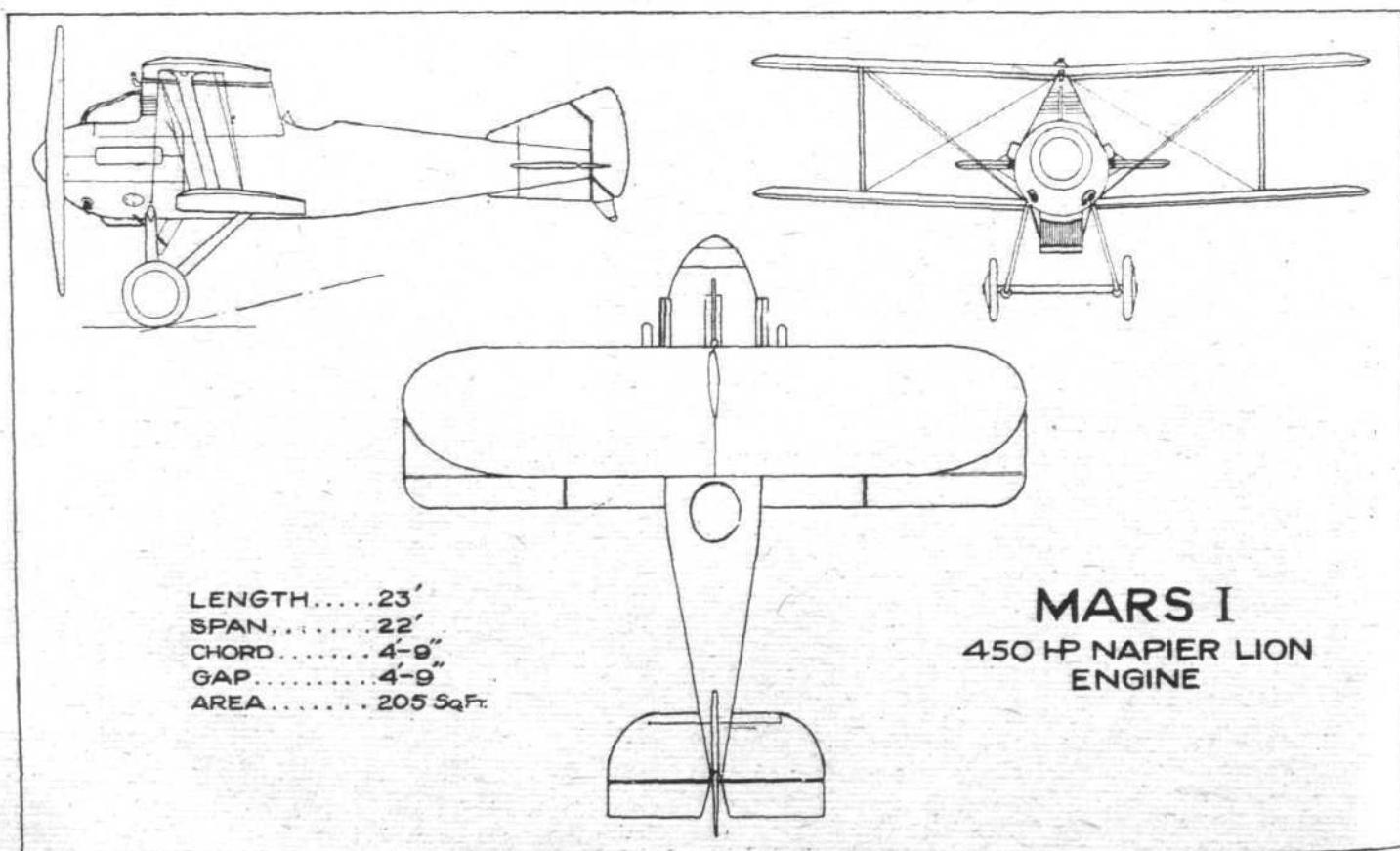
Concerning the birth of the Mars I it is not without interest to make a note of the fact that about a month ago the machine



The Winner of
the Aerial Derby:
The Mars I.
Three-quarter
front view. Note
the position of
the petrol tank
on top of the
fuselage, in front of
the pilot's seat.

large engine into a small and, let it be admitted from the very outset, very pretty machine, was most interesting. Hitherto most of the really pretty aeroplanes have been designed in France, but with the Mars I Folland has shown that he can design a machine which is pleasing to the eye, while at the same time being "right" structurally and aerodynamically. It is an old saying that if a machine *looks* right it *is* right.

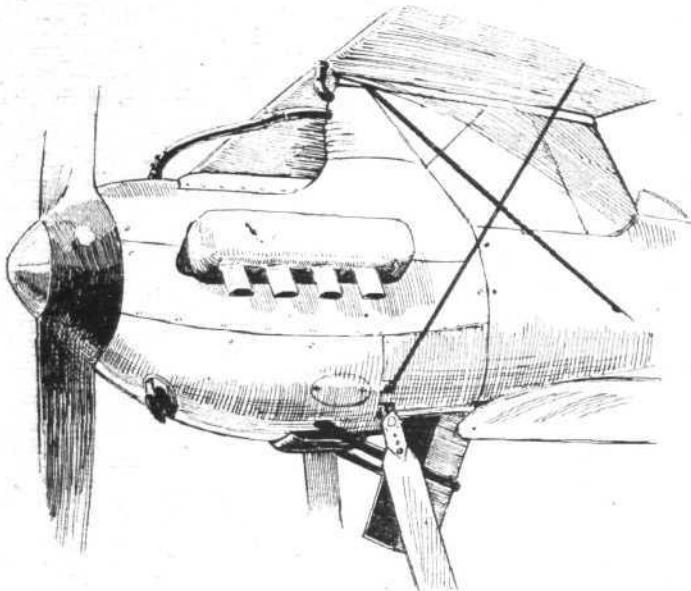
existed in Mr. Folland's brain only; nothing had been put on paper (or should one say tracing cloth?). Nearly a week ago the machine won the Derby. This is pretty good going and to those who realise the problems attending the production of a machine of this type, the fact speaks volumes for Mr. Folland's capabilities as a designer. So far as we can learn from Mr. James, whose masterly handling of the machine



THE WINNER OF THE DERBY : General arrangement drawings, approximately to scale, of the Mars I.

piloted it to victory, there is nothing to be desired in the stability and general handling of the machine. A look at the accompanying general arrangement drawings will tell those

consequently a small "head" might be open to doubt, and as a safeguard a pressure system is incorporated. Mounted on the front of the petrol tank is, it will be observed, a small water

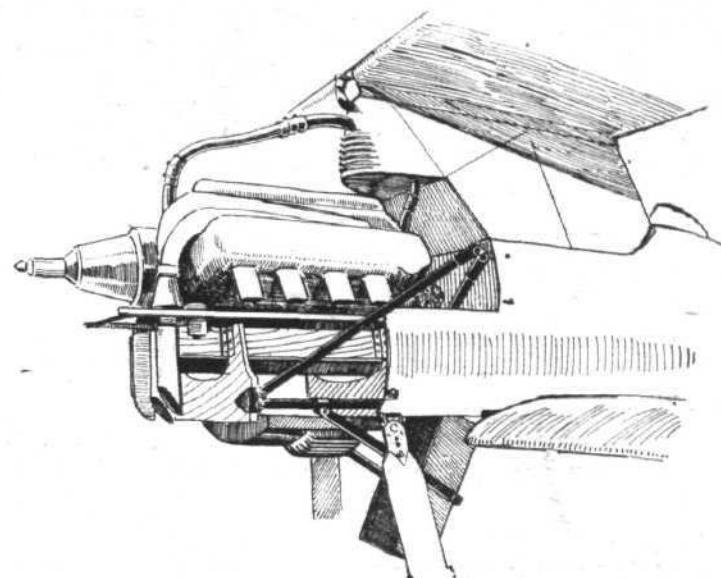


SOME DETAILS OF THE MARS I : On the left the cowling over the engine. Note the "spinner," which is built integral with the propeller, and the petrol tank above the fuselage.

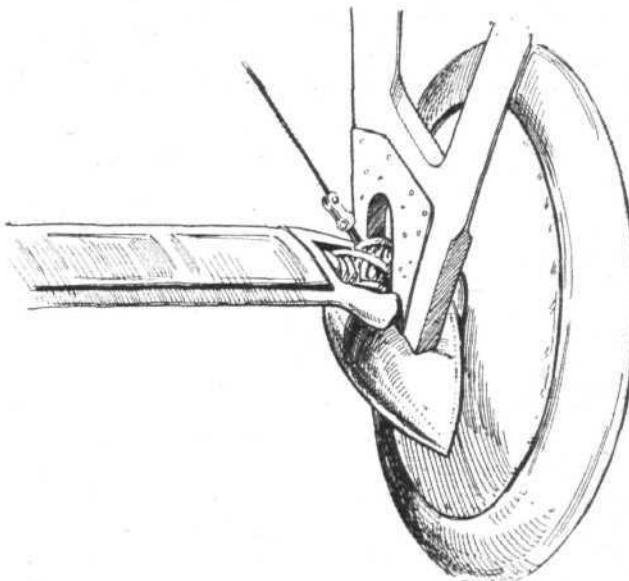
who are familiar with the British Nieuport machines ("Nighthawks," "Nieuhawks," "Goshawks," etc.) that from the pilot's cockpit aft of the *fuselage* is standard. This helps to explain the rapidity of production, but does not account for the extraordinarily pleasing lines of the machine, nor does it necessarily promise to give a short cut to good balance. That the balance *is* good cannot be doubted, for even fitted with a trimming tail such a machine would be distinctly unpleasant if the trim was wrong. Incidentally the standard rear portion of the *fuselage*, including the entire *empennage*, seems to indicate that a certain amount of standardisation need not necessarily hamper design to any great extent.

As the Nieuport machines have been dealt with very fully in the past in our columns, we need not devote much space to a description of the *fuselage* and tail. These were illustrated in our issue of November 27, 1919. The front portion of the *fuselage* has been rebuilt to accommodate the 450 h.p. Napier "Lion" engine. Instead of the multi-ply engine plate of the "Nighthawk," the Mars I has cradles of the same material, supporting the ash engine bearers, which are attached to them by angle plates and braced diagonally by steel tubes. The manner of mounting the engine is illustrated in one of the accompanying sketches, which indicates most of the details. The mounting of the radiator underneath the *fuselage* should be noted, as this position helps to a very great extent to give the machine the clean nose, which lends to it its graceful appearance.

The placing of the petrol tank is unusual, and might at first give the impression that the pilot's view was entirely obstructed in a forward direction. This is probably true, but then the pilot could see but little over a relatively wide engine in any case, and the placing of the petrol tank where it is results in a simplified petrol system. Whether the gravity feed is sufficient when the tank is nearly empty, and there is



tank which is ribbed, or rather corrugated, on the front to assist in the cooling. The same principle is applied to the oil



THE MARS I : Details of the shock absorbers and their streamline casings.

tank, which is mounted underneath the engine, and has corrugations formed in its lower part which projects through the very neat engine cowl.



THE WINNER OF THE AERIAL DERBY: Two views of the Mars I.

As in other machines of Mr. Folland's design, the "spinner" on the propeller is made integral with the screw. The result is a very clean entry and smooth run for the air, and the cowl is so shaped that only the top of the cylinder blocks project beyond it. The whole is exceptionally clean and neat, and proves that it is possible to install a "Lion" in a relatively compact engine housing. Incidentally we might mention that the propeller was designed by Dr. H. C. Watts, of Ogilvie and partners, and Mr. Folland has nothing but praise for it. It was, he informs us, satisfactory in every way.

The under-carriage is identical in its details with that of the Nieuport "Nighthawk." That is to say, the struts are of spruce and are attached to the lower *longerons* by links, so that a slight discrepancy in alignment does not matter. To reduce resistance, the shock absorbers are partly enclosed in streamline casings, as shown in one of our sketches.

Generally speaking, the wings do not present any unusual features. The section is normal, and is not a specially thin racing section, there being ample room for spars of reasonable depth. The spars and ribs are of normal construction also, and the only feature which calls for comment is the use of single I-struts in a machine with staggered wings. We frankly admit that this is a practice with which we are not particularly in love. At the time of the Gordon-Bennett race last year we commented on this feature in the American machine flown by Major Schroeder. The stagger in the Mars I is not, however, as great as it was in the Verville-Packard, and carried out as it is in this machine it is probably quite satisfactory in practice. At the extremities of the spruce struts these are attached, by a mortice joint, to walnut "feet," spreading out to meet the two wing spars, to which they are attached by steel plates and brackets. The lift and anti-lift wires are, of course, attached to the spars at the points where the "feet" meet the spars.

The wing tips of the top plane are rounded off, as no *ailerons* are fitted to the top plane. The lower wing tips, on account of the *ailerons*, are square, with just the corners rounded off. This system, which we first noticed on the

Spad machines at the last Paris Aero Show, has much to recommend it, provided sufficient lateral control can be obtained with one set of *ailerons* only. The *ailerons* are easily get-at-able, and the absence of *ailerons* on the top plane allows of thinning down the wing tips, and thus improves the efficiency of the wing which most affects the performance.

The weight of the Mars I fully loaded is 2,500 lbs., giving a wing loading (for 205 sq. ft.) of just over 12 lbs./sq. ft. and a power loading (on 450 h.p.) of about 5½ lbs./h.p. In the Derby the machine covered the course at the rate of about 163 m.p.h., but this does not, of course, represent her actual speed, which must have been in the neighbourhood of 170, at least. Even this is not, we should imagine, anything like the best of which the machine is capable. We believe that the radiator was too small to allow of running the engine all-out for any length of time, and that, as a matter of fact, James was flying well throttled down most of the time. With a larger radiator and various refinements incorporated here and there the machine should, in our opinion, be capable of a speed of about 185 m.p.h. However, time did not allow of those extra little touches which mean so much when such speeds are concerned, but later on we hope to hear that the machine has been through the official tests at Martlesham and has handsomely beaten the previous record, also set up by a machine designed by Mr. Folland—the "Goshawk." In the meantime we congratulate the Gloucestershire Aviation Co. on their rapid production of such a fine machine; Mr. Folland on a very excellent design; and last, but by no means least, Mr. James on a splendid piece of flying. His get-off was not, perhaps, spectacular, but it was extremely sound, and he was playing for safety by allowing himself a good run. His landing at the end of the race was magnificent, considering that the machine is loaded to the tune of 12 lbs./sq. ft., being practically a "three-point" landing, with engine stopped. "Jimmy" has worked hard and persistently since we first knew him—round about 1910 out in Gloucester—and he thoroughly deserves his victory.

SOME "MIGHT-HAVE-BEEN'S"

UNFORTUNATELY, a series of mishaps during tests deprived this year's Aerial Derby of much of its interest by preventing all but one of the pure racing machines from starting in the race. It is thought, however, that a few notes dealing with these "might-have-been's" will be appreciated by our readers, in spite of their failure to put in an appearance on the day of the Derby.

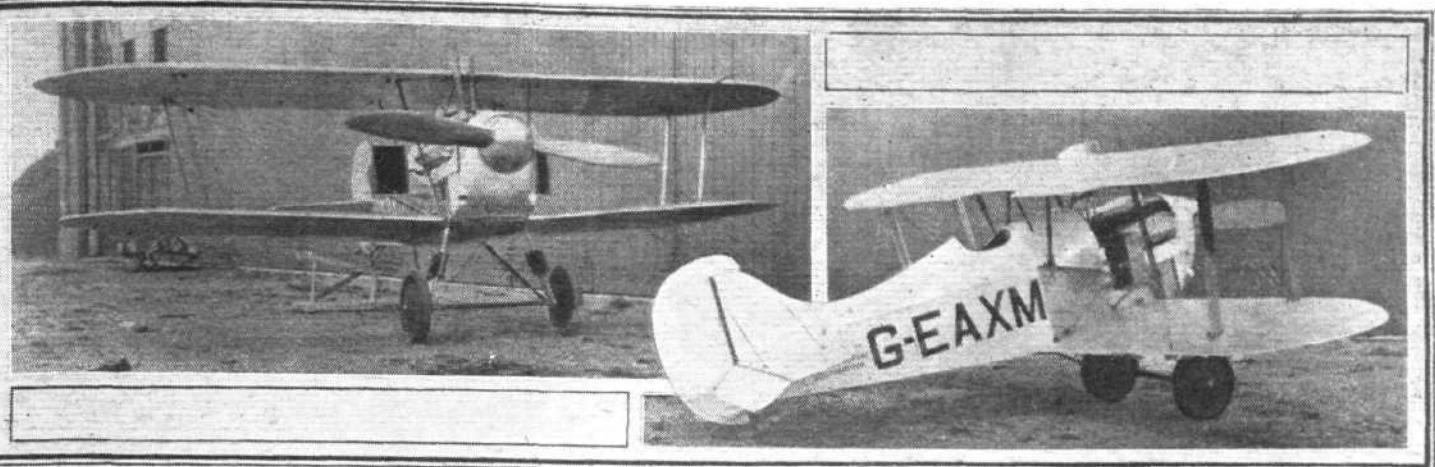
The French Nieuport.—Little information is available regarding the machine entered by the French Nieuport firm, and which was to have been flown by the famous French pilot Sadi Lecointe. We gather, however, that the machine was similar to that flown by Lecointe in the Gordon-Bennett last year. This machine had a 300 h.p. Hispano-Suiza engine, totally enclosed in the nose of a very minute monocoque fuselage. The wings were of biplane formation, with ordinary interplane struts and bracing. Later, when Lecointe was

after records, the pilot's cockpit was provided with a sliding hatch which could be closed when the machine was well in the air, and again opened so as to allow the pilot to put his head outside for landing. This machine is officially credited with a speed of 193 m.p.h., but although it may have been doing this speed—as far as it is humanly possible to measure it—over the kilometre course, it seems almost incredible that this could have been its actual air speed for any length of time, even flying as Sadi did, a few feet off the ground. The mishap which prevented the machine from taking part was caused by the collapsing of a wheel. This threw the machine on to her nose, and she went right over, wiping off the undercarriage and wings but—probably owing to the monocoque fuselage—without seriously injuring Lecointe.

The de Monge V.a.—This machine was described in the entries list as a monoplane, but some photographs which



Another "Non-Starter": The de Monge Monoplane, which in this view is a biplane. The lower wing is readily detachable, when the machine can be flown as a parasol monoplane.



ONE OF THE "MIGHT-HAVE-BEEN'S": The Avro Racer, 450 h.p. Napier "Lion" engine.

we have seen, and one of which is published herewith, show it as a biplane. The riddle is solved, however by the discovery that the lower plane could be easily removed, with its Vee struts, when the machine becomes a monoplane with a single lift strut on each side. The *fuselage* is swept up to meet the upper plane, and it appears that the pilot sits inside this "hump." The engine of this machine is also a 300 h.p. Hispano, and the machine was expected to be very fast. Unfortunately, a collapsed wheel also resulted in damaging this machine to such an extent as to preclude flying it in the race. M. de Romanet, the pilot, was, however, at Hendon during the race, and was, we believe, quite taken with the Mars I. Following are brief data relating to the de Monge machine: Span, 26 ft.; length o.a., 23 ft.; chord at root, 8·5 ft.; chord at tips, 3·3 ft.; wing area, 160 sq. ft.; weight in flying trim, 2,000 lbs.; load per sq. ft., 12·5 lbs.; load per h.p. (on 300 h.p.), 6·6 lbs.

The Avro-Lion.—The very unfortunate accident which deleted the racer entered by Avros, and which resulted in serious injury to Major Westgarth-Heslam, deprived the Derby of a very interesting entrant. It appears that on landing the machine after a test flight, Heslam rather overshot the mark and struck some obstacle which started the machine bouncing, finally to crash into a railway cutting. The machine is badly damaged, and Major Heslam received rather severe injuries. He has, however, an apparently unlimited supply of grit, and this will, we hope, pull him through, as it has done before.

The machine is, as regards the rear portion of the *fuselage*, the same as that flown by Heslam last year, but the front has been rebuilt to take the Napier "Lion." The covering in the rear portion is ply-wood, the construction being semi-monocoque. The engine is covered in all but the tops of the cylinder blocks, and there are two radiators, mounted one on each side. The nose is tapered off, and a "spinner" over the propeller boss completes the streamlining. The tail plane and fin are covered with ply-wood, and this is curved into the *fuselage* so as to avoid as much as possible the creation of eddies. The span of the machine is 25 ft., and the wing chord 4 ft. 6 ins.

The "Alula" Monoplane.—Although it was not a crash which prevented the "Alula" monoplane from starting in the Derby, its failure to do so (start, not crash) probably did not come as a surprise to those who knew about the machine. To begin with, the "Alula" wing was rather too much of an experiment to justify any hopes of it appearing in the race. The *fuselage* is that of the old "Semi-Quaver," somewhat cut down in depth, and on top of this is mounted the "Alula" wing. This particular form of wing has been arrived at by Mr. Holle, of the Commercial Aeroplane Wing Syndicate, after years of study, and is claimed by its designer to prevent, or at any rate greatly reduce, end losses. Previous wings tested have been designed more for lifting heavy loads at relatively low speeds, but the present wing was, we understand, designed to give a high L/D at low angles and low lift coefficients. The position of the c.p. was, we believe, a matter of some uncertainty, and further to complicate matters, the construction is unusual inasmuch as there are no wing spars, the wing being built more like a boat, with wood planking and light stringers and ribs. Such a structure can scarcely be "stressed" by calculation with any degree of certainty, and we understand that, although experts who had seen the wing were of the opinion that it was probably quite strong enough, no sand tests had been carried out.

The machine was not ready for testing until the evening before the race, and Courtney decided, after a short run over the ground, that he would not take the machine up. The undercarriage of the "Semi-Quaver" is very narrow, and the weight of a heavy wing, placed high up, did not improve matters, with the result that, we learn, the machine could not be controlled properly while taxiing. Under the circumstances we cannot say that we blame Courtney for refusing to go on with the tests. The two serious accidents which had already happened in connection with tests on machines entered had given a quite sufficiently bad impression, and if a third machine had had a serious accident, the harm done to aviation would have been further increased. When sand tests have been made and the trials proceeded with at leisure, it is time enough to begin thinking of racing the machine.

THE ROYAL AERO CLUB OF THE U.K.

OFFICIAL NOTICES TO MEMBERS

COWES SEAPLANE MEETING

THE Racing Committee of the Royal Aero Club have reluctantly been obliged to postpone the proposed Seaplane Races at Cowes fixed for August 1 and 2 next.

A Meeting of the Racing Committee and Competitors will be held shortly to consider as to a new date and the advisability of holding the Races elsewhere.

AERIAL DERBY, JULY 16, 1921. RESULT

Winner (Fastest Time)

Trophy and £400—

Gloucestershire Aircraft Co., Ltd. Mars I, 450 h.p.
Napier Lion (Pilot: John Herbert James). Time:
1 hr. 13 mins. 28 secs. 163·34 miles per hour.

Handicap

1st Prize, Trophy and £200—

Gloucestershire Aircraft Co., Ltd. Mars I, 450 h.p.
Napier Lion (Pilot: John Herbert James).

2nd Prize, £100—

Major-General Sir Sefton Brancker, K.C.B., and Philip S. Foster. S.E. 5a, 220 h.p. Wolseley Viper (Pilot: Flight Lieut. W. H. Longton, D.F.C., A.F.C., R.A.F.).

3rd Prize, £50—

Alan Samuel Butler. Bristol Tourer, 240 h.p. Siddeley Puma (Pilot: Alan Samuel Butler).

FIRST AIR RACE, OXFORD V. CAMBRIDGE

Result: Cambridge won by 9 points

Oxford

Cambridge	Oxford	
W. S. Philcox (Caius) .. 1	A. V. Hurley (Keble) .. 4	
H. A. Francis (Caius) .. 2	A. R. Boeree (Oriel) .. 5	
R. K. Muir (St. Catharine's) 3	N. Pring (New), landed at Enfield on Third Circuit 6	
Points 6	Points 15	

Offices: THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W. 1.

H. E. PERRIN, Secretary.

THE PASSING OF HARRY HAWKER

"HAWKER, HARRY GEORGE, Certificate No. 297, Date, September 17, 1912 (Farman biplane, Sopwith School, Brooklands)."

Such is the brief record in the Royal Aero Club Year Book of the event which marked the official beginning of Harry Hawker's flying career. Little did one then suspect how important was to be the short but intense life of aerial activity erected upon that small foundation. And in truth there was at the time no particular reason for singling out Harry Hawker from other pupils who were learning to fly. "He took a very good ticket" was the comment made at the time, but then the same comment was not infrequently made in those early days, when those who took up flying did so because they were intensely enthusiastic and entered into the thing with all their might. What was it, then, which singled out Hawker from the average and enabled him to become one of the greatest pilots the world has known? He had marvellous "hands," that was evident from quite early in his career, but that in itself would not have carried him to the heights he attained. No, we think that the one single thing which did more than any other towards making Hawker's career what it was was the indomitable spirit of the man.

If ever there was a trier, Hawker was one. Once he made up his mind to do a thing, he would try, and try, and try again until he succeeded. Failures served only to spur him on to new effort. Within a small exterior—not an insignificant one, for his extraordinary will power and energy prevented it from being insignificant—he had a great and restless spirit, a driving force which made it imperative for him to be up and doing. He loved to do things that were worth while, and did them for the sake of doing them, not with any sort of gain in view. If people asked him after a crash whether he did not think of giving up flying he would look at them in surprise. Such a thing never entered his head.

When ill health should have kept him on the ground he still continued to fly, not so much, perhaps, because he underestimated his illness, as because his restless nature would not suffer him to sit still and "take things easy." Had he been the wealthiest man in the world, Hawker would still have done the things that he considered worth doing. That these things usually happened to entail a good deal of risk to himself was, to him, quite a minor consideration. By this it is in no way intended to convey the impression that Hawker was given to taking risks unnecessarily. On the contrary. But if the things he did carried with them an element of danger, well, he did not shirk them on that account. In his mind they were mere incidentals to the game he loved so well, the game which has now claimed him.

The world of aviation has lost a champion; his wife, near relatives and friends have lost something which is quite irreparable, but in our sorrow let us be comforted by the thought that Harry Hawker died as he had lived, doing the work he loved.

Some Milestones in Hawker's Career

The first big flight which brought Hawker into the public eye was his magnificent performance of flying for 8 hours 23 minutes on a small biplane built at the Sopwith works at Kingston. This flight was for the Michelin Trophy and £500 prize for the aviator who remained in the air for the longest period of uninterrupted flight. Hawker made altogether four attempts, and his flight of 8 hours 23 minutes, made on October 24, 1912, at Brooklands, won him the prize. The Sopwith biplane used was very similar to the Wright machine, but had been built by Sopwiths. Its chief characteristic, in which it differed from the original Wright, was a little side-car nacelle for the pilot. The engine was a 40 h.p. A.B.C. designed by Mr. Bradshaw. It was a four-cylinders-in-line water-cooled engine, driving the two pusher screws by chain transmission.

As far as the general public was concerned, nothing much was now heard of Hawker until May, 1913. Not that he had been idle in the interval, but his work was of a character which did not arouse public interest, being mostly in the nature of testing new machines, of which Sopwiths at that time began to turn out quite a few. At the Olympia Aero Show in February, 1913, Sopwiths exhibited two machines which were both destined to make history later on. One of these was a tractor fuselage biplane with 80 h.p. Gnome engine. On this machine Hawker later on, on May 31, 1913, to be exact, established a British altitude record by taking it up to a height of 11,450 ft.

During the next month, June, 1913, Hawker was again busy attacking height records, and succeeded in putting the British height record for pilot and two passengers up to 10,600 ft., and that for pilot and one passenger up to 12,900 ft.

In July of the same year Hawker again distinguished himself by winning the Mortimer Singer Prize of £500 for a series of out and home flights, alighting alternately on land and on the sea. Hawker was thus the first man to win a prize for flying an amphibian machine. The one he used on that occasion was a Sopwith "Bat Boat" with Green engine.

Not content with his achievements so far, Hawker again went for altitude records on the Sopwith tractor biplane, and succeeded in reaching a height of 8,400 ft. with three passengers. This was not only a British but a world's record.

Then came the *Daily Mail* £5,000 Prize for the circuit of Britain. In this race Hawker was flying a twin-float seaplane, of Sopwith manufacture and design, of course. This machine was fitted with a 100 h.p. Green engine. By a series of magnificent flights Hawker made his way up to Scotland and down the west coast as far as Dublin. When within sight of Dublin, Hawker decided to come down in order to inspect his valve springs, which he feared were giving out. In spiralling down his foot slipped off the rudder bar and the machine crashed into the sea, thus spoiling Hawker's chances of winning the prize. Out of a total distance of 1,540 miles, Hawker had covered 1,043 miles, and, as he himself put it, it was "just a piece of ghastly bad luck," that he should fail when almost within sight of the goal.

Towards the end of 1913, which had been an eventful one for Hawker and the Sopwith firm, Hawker took one of the little "Tabloid" biplanes out to Australia, where he did a good deal of exhibition work. In June of 1914, Hawker returned from his native land, as he had been entered for the second Circuit of Britain. Owing to the outbreak of war, this race was abandoned, and Hawker then devoted the next four years to the work of testing the long series of Sopwith machines which came into being between August, 1914, and November, 1918. His work in this direction was of the greatest possible value to the development of high-performance British aeroplanes, and to his knowledge must be ascribed a great deal of the success which attended Sopwith machines during the war period. The skill that he possessed and the intimate knowledge of engines as well as machines soon found remedies for any shortcomings and pointed the way to better and still better performances.

After the cessation of hostilities Hawker again came into the public eye by his magnificent failure in the attempt to cross the Atlantic. His forced alighting, with his companion, Mackenzie-Grieve, and their luck in being picked up by the Danish vessel, "Mary," the long uncertainty before any news of them reached this country, and the enthusiasm with which they were greeted, will still be so fresh in mind that no reference need be made here. After this magnificent effort, Hawker still continued to fly, but that was really his last great effort. He entered for the Derby last year and flew in the race, but was disqualified for failing to cross the finishing line properly. This year he had intended to fly the Nieuport Goshawk, and it was while testing this machine that he met his death.

The Inquest

Some surprise was caused by the verdict returned at the inquest on Hawker. In the opinion of the Coroner Hawker "died of injuries caused by the smashing to the ground of the aeroplane in which he was flying, and of which he had lost control owing to his physical disability." Somehow or other the opinion had obtained that the machine caught fire, and that this might have accounted for the crash. However, it now appears that this first impression was wrong, and that according to several witnesses, the machine was not on fire while in the air, such flames as were stated to have been seen being assumed to be those which one would naturally expect to see issuing from open exhaust ports. For a long time Hawker had suffered from tubercular disease of the spine, and, in the opinion of Dr. Garner, haemorrhage had taken place in the air, as a post mortem examination showed a mass of blood on the front of the spinal cord. A verdict of "Death by Misadventure" was returned.

Funeral of Harry Hawker

How widespread was the grief at the untimely death, at 31, of Harry Hawker was emphasised by the attendance at the last rites of the beloved pilot on Monday at Hook Parish Church, near Surbiton.

The chief mourners were Mr. and Mrs. Peaty (Mrs. Hawker's parents), Captain Peaty, Miss Peaty, Mr. T. O. M. Sopwith and Mr. Sigrist (directors of the Hawker Engineering Company), Mr. William Le Queux, and Mr. F. May.

Among those also present were:—Major-General Sir Sefton Brancker, Col. F. K. McClean, Lieut.-Commander Perrin and Mr. P. Alexander (representing the Royal Aero Club).

Brig.-Gen. Festing (the Air Ministry), Major J. Coates (representing the Australian Prime Minister), Mr. C. J. Fairfax Scott (the Imperial Air Fleet Committee), Squadron-Leader B. Moore (R.A.F. Memorial Fund) and Admiral Mark Kerr.

While the burial service was taking place a private service was held at Horsley Towers, the residence of Mr. and Mrs. Sopwith. It was attended by Mrs. Hawker and her two children, and Mrs. Sopwith.

The floral tributes were very numerous. An aeroplane in red and blue flowers was sent by the Sopwith Works, and another design was a four-bladed propeller from which wreaths were suspended. The Imperial Air Fleet Committee sent a laurel wreath with red, white and blue flowers at the

base. A bunch of carnations from Mr. Hawker's widow, and two bunches of flowers from his daughters, Pamela and Mary, were placed in the centre of the coffin. Among those who sent flowers were the following:—

The Air Council, the Commonwealth of Australia, the Australian Prime Minister, the Directors of the *Daily Mail*, the Royal Air Force Memorial Fund, the Royal Aero Club, Commander Grieve (Mr. Hawker's navigator in the Atlantic flight), Mr. Raynham, Sir Samuel Waring, the Nieuport General Aircraft Company, Mr. and Mrs. Sopwith, Mr. Sigrist, Mr. William Le Queux, the drivers and conductors of the 105A L.G. omnibuses, employés of the A.B.C. omnibuses, and 4 A.C. Brooklands drivers.

ROYAL AIR FORCE INTELLIGENCE

Air A.D.C. to H.M. the King.—His Majesty the King has been graciously pleased to approve of the appointment of Group-Captain Edgar Rainey Ludlow-Hewitt, C.M.G., D.S.O., M.C., as Air Aide-de-Camp to His Majesty.

Movements.—The following movements are reported:—

Headquarters, Egyptian Group, from Almaza to Helipolis. Date 31.5.21.

R.A.F. School (India) from Bangalore to Ambala. Date 1.4.21.

No. 3 Squadron from Bangalore to Ambala. Date 1.4.21.

No. 20 Squadron (India) from Tank to Parachinar. Date 11.4.21.

Aircraft Depôt (India) from Lahore Cantonments to Drigh Road, Karachi. Date 15.4.21.

Appointments.—The following appointments in the Royal Air Force are notified:—

Wing-Commander F. E. T. Hewlett, D.S.O., O.B.E., from No. 10 Group H.Q. (Coastal Area), to Headquarters, Coastal Area. Date 7.7.21.

Wing-Commander A. D. Warrington-Morris, C.M.G., O.B.E., from Air Ministry (D. of R.), to Command Electrical and Wireless School, Inland Area. Date 1.8.21.

Wing-Commander J. B. Bowen, O.B.E., from Electrical and Wireless School, Inland Area, to Air Ministry (D. of R.), for duty as Deputy Director of Instruments. Date 1.8.21.

Squadron-Leader C. H. Nicholas, A.F.C., from R.A.F. Depôt (Inland Area), to Aeroplane Experimental Establishment (Inland Area), for Flying (Experimental) duties. Date 12.7.21.

Squadron-Leader H. A. Hewat, M.B. (Medical) from Headquarters, Inland Area to R.A.F. (Cadet) College, Cranwell, for Duty at R.A.F. Hospital, Cranwell. Date 12.7.21.

Squadron-Leader A. S. Glynn, M.B. (Medical), from R.A.F. Depôt, (Inland Area), to Headquarters, Inland Area, for Duty as Medical Officer. Date 1.7.21.

Squadron-Leader T. V. Lister from No. 3 Group Headquarters (Inland Area) to Electrical and Wireless School (Inland Area). Date 18.7.21.

Squadron-Leader C. S. Wynne-Eyton, D.S.O., from No. 4 Squadron (Inland Area) to Headquarters, No. 11 (Irish) Wing. Date 24.7.21.

Squadron-Leader J. V. Steel, O.B.E., from Headquarters, No. 11 (Irish) Wing to R.A.F. Depôt (Inland Area). Date 1.8.21.

Wing-Commander C. E. C. Stanford, D.S.O., M.B., B.Sc., from Inspector of Recruiting (Coastal Area) to Headquarters, Inland Area, as Principal Medical Officer. Date 15.7.21.

Wing-Commander S. Grant-Dalton, D.S.O., A.F.C., from R.A.F. Depôt (Inland Area) to No. 29 Group H.Q. (Coastal Area) for Air Staff duties. Dated 20.7.21.

Squadron Leader L. Tomkinson, D.S.O., A.F.C., from R.A.F. Depôt (Inland Area) to Air Ministry (D.O.I.). Date 6.8.21.

Squadron Leader R. B. Maycock, O.B.E., from Air Ministry (D.O.I.) to No. 230 Squadron (Coastal Area). Date 6.8.21.

Squadron Leader J. McCrae, M.B.E., from Aircraft Depôt (India) to R.A.F. Depôt (Inland Area). Date 11.7.21.

R.A.F. Non-Public Funds.—The Secretary of State has decided that the administrative control of non-public funds held by the Air Ministry on behalf of the R.A.F. shall in future be exercised by a Committee constituted as follows:—Air-Commodore C. L. Lambe, C.B., C.M.G., D.S.O. (Director of Equipment) (Chairman); Mr. J. A. Webster, D.S.O. (Assistant Secretary); Group-Captain C. L. N. Newall, C.M.G., C.B.E., A.M. (Deputy Director of Personnel)—this Committee being responsible to and working under the general direction of a Committee of the Air Council consisting of the Chief of the Air Staff, the Director of Personnel and the Secretary.

The duties of the Committee are:—

(a) To decide the allocation of non-public funds held by the Air Ministry to commands and units.

(b) To see that the non-public funds so allocated are employed in accordance with the intention of the original decision.

(c) To advise commands and units as requested about other non-public monies not derived from funds allocated by the Air Ministry.

(d) Generally, to consider any matters connected with non-public monies which may be referred to them.

(e) To be acquainted with all receipts and payments and to supervise the transactions of the trustee accounts and current accounts.

Closing of Balloon Stores Depôt, Kingsnorth.—The Balloon Stores Depôt, Kingsnorth, is now closed for the receipts of stores and issues. The Kite-balloon equipment is being transferred to No. 4 Stores Depôt, Ickenham, Ruislip.

No. 59 Squadron Reunion Dinner.—The annual dinner of No. 59 Squadron will take place on Saturday, July 30. Those wishing to attend should apply to H. S. Marten-Smith, Esq., 116, Palace Road, Tulse Hill, S.W. 2.

Dunning Cup—Award for 1920.—The Dunning Cup, which was subscribed by certain officers in order to commemorate the achievement of the late Squadron-Leader E. H. Dunning, D.S.C., of being the first officer to land an aeroplane successfully on the deck of a ship under way on August 2, 1917, has been awarded for 1920 to Flight-Lieut. F. J. Linnell. The Cup is given annually to the officer who is considered to have done most to further aviation in connection with the Fleet for the year in question.

Previous awards are:—

- 1917. Flight-Com. F. J. Rutland, D.S.C., A.M.
- 1918. Flight-Lieut. W. D. Acland, D.F.C., A.F.C.
- 1919. Squadron-Leader C. W. H. Pulford, O.B.E., A.F.C.

and we understand the only work necessary to be done on the engine was to grind the valves in twice. Both petrol and oil consumption were very satisfactory, and little doubt is felt but that the machines will prove thoroughly successful, and the example by Mr. Hogarth widely copied by the wealthy squatters of Australia.

Air Postal Stamps for China

In connection with the Peking-Shanghai air route, the Aeronautical Department is proposing to issue a new set of air postal stamps which will be sold for 15, 30, and 50 cents, respectively. The design of the stamps will be "an airship flying over the Great Wall." They will be inscribed in English and in Chinese "Air Post Service." These stamps will be on sale on the day that aeronautical traffic between Peking and Tientsin is inaugurated.

Touring by Aeroplane in Australia

PARTICULARS are to hand by this mail of some extensive flights by an Avro machine fitted with a 100-h.p. Sunbeam-Coatalen "Dyak" engine. This machine is the property of Mr. P. Hogarth, of Richmond, North Queensland, who has purchased it for the greater convenience of visiting his large properties in Australia; and in view of the undeveloped nature of the country in many parts, touring by motor-car or cart is scarcely practicable and an aeroplane is much more expeditious. Recently Mr. Hogarth took delivery of the machine at Sydney and flew home, a distance of 1,845 miles in twenty flying hours, averaging 92 miles per hour—an extremely good performance.

Another machine of similar type has covered well over 10,000 miles in something like 150 hours actual flying time,

LONDON TERMINAL AERODROME

Monday Evening, July 18.

THE projected visit to the aerodrome of the Dominion Premiers was spoiled by the non-appearance of the Premiers of Canada, South Africa, and New Zealand. Mr. Hughes, of Australia, and Mr. Ashbold, Agent-General for Tasmania, were among the visitors, and there were also representatives of the other Dominions; but a good proportion of those present appeared to be Air Ministry officials.

All the resources of the aerodrome were used to make the visit a success, and the Civil Aerial Traffic officers, Major Greer and Capts. Glasson and Baker—on the aeroplane side—and Mr. Dollery, of the airship department, are to be congratulated upon the arrangements. The various "air expresses" were lined up outside the public enclosure, and, as soon as the visitors arrived, the two D.H. 18's of the Instone Line left for Paris—smothering the visitors with dust as an incidental preliminary.

The night-lighting, meteorological, and wireless apparatus were all on view, and the delegates were conducted round the aerodrome in three parties. The "amphibian" attracted a great deal of attention, as did the Fokker monoplane, while Mr. Barnard took several of the visitors for short flights in the "Vimy."

The "R.33" was, however, the centre of attraction, and several energetic people, including ladies, climbed up the mast to get a closer view of the airship. The simplicity of all the arrangements for re-fuelling, filling the water-ballast tanks, and releasing the ship from the mast, evoked much admiring comment, and it was evident that the delegates from the Dominions were impressed by the possibilities of airship travel.

The proceedings terminated with the departure of the "R.33" for Pulham, carrying as passengers three of the delegates and Sir Ross Smith.

There was a rush on Trust House by the Air Ministry people at the close of the proceedings; but stocks of drinks and ice had been laid in for the occasion, and, by the exercise of a little patience, thirsts were quenched for a time—only to be re-created, however, in the subsequent dash to catch the returning motor-cars.

Air Passenger Record

THERE was a record number of passengers on the Continental "airways" during the week. No fewer than 470 were registered in and out of the Customs' House. An examination of the passenger returns reveals the fact that by far the greater proportion are foreigners, chiefly American and French. The Britisher is, of course, very conservative, and has not yet learned to profit much by the advantage offered by the speed of air transport.

The bulk of the traffic is between London and Paris. Although the K.L.M. have also had a record week, their passengers numbered only 27 out of the total of 470. But there is a large and growing goods traffic by air between London and Amsterdam.

Several times this week there have been three of the Dutch monoplanes at Croydon at one and the same time, and on two occasions the 10 a.m. service to Amsterdam has had to be duplicated.

New 10-Seater Fokker

CAPT. LEVERTON informs me that the new 10-seater Fokker monoplane is now ready for testing. This machine is fitted at present with a Liberty engine, but Mynheer Fokker is hoping to instal Napier "Lions" in future machines of this design. There is also an improved F.111 Fokker which will definitely carry five passengers and the pilot, in addition to baggage and goods.

A D.H.9, owned by the De Havilland Company, smashed its under-carriage while landing with a passenger in a field near Havre, and on Thursday Mr. Cobham on another D.H.9 flew over to Havre with spares and a mechanic to effect repairs. There was a spare axle on the bottom wing against the fuselage, while a new aileron was fixed under the fuselage, in a fabric sling tacked on to the bottom longerons.

The Flying Taxi-man

MR. COBHAM is becoming quite a familiar visitor at the aerodrome. During the week he flew a special passenger to Amsterdam for the K.L.M. Leaving Croydon at 3.15 p.m., he picked up a passenger at Rotterdam on his return journey, and was back in London the same evening. On Sunday he carried a jockey to Ostend, and, waiting until the finish of the day's racing, brought him back to London in time for dinner.

The Sports' Club is now firmly established, and an inter-section cricket championship has been arranged. The teams

are limited to eight a side, and each side bats for an hour, unless of course all are out in less than that time. The first match was played between the Meteorological and Wireless section and the Miscellaneous section, resulting in a win for the former. On Wednesday the Instone Air Line played Handley Page Transport, the former scoring 53 against their opponents' 33.

A match between the London Terminal Aerodrome and the University Air Race teams during the week resulted in a win for the aerodrome by 57 to 47.

The Instone Air Line are progressing steadily in the direction of regular shipping ideals. They have now supplied their personnel with gold-wire badges of the Instone House Flag, flanked with laurel leaves and surmounted with a gold-wire "Vimy." This is, it is rumoured, the first step towards equipping their staff with uniforms. They are, apparently, breaking them into the idea gently.

Landings after Dark

ON Monday last two of the Instone machines, the 4a and the "Vimy," landed from Lympne, after dark. As no intimation had been received that they were to be expected until after Mr. Saul and the searchlight staff had gone home, the only lights working were the petrol flares. Safe landings were, however, made, though it is stated that one of the machines had a narrow escape from hitting the Disposal Company's hangars.

Testing the Mooring Mast

THE airship mooring-mast was finally tested on Wednesday afternoon. The cable used for hauling in the airship was run out and fastened to a tree some distance away. The haulage engine was then started, until a pull of five tons was registered on the cable. The entire mast was then gone over carefully, with the strain still on, for any sign of weakness. Even with a 30 miles-an-hour wind the airship exerts a pull of under three tons, and, if the wind exceeds this strength, the propellers are set in motion and the airship eases up to the mast.

On Thursday night the "R.33" arrived from Pulham, and was moored without any hitch at 8 p.m. After a stay of about an hour, she returned to Pulham. On Friday night the airship was again moored at Croydon about 7 o'clock, the whole operation of mooring occupying only 20 minutes.

There was some doubt, when the idea of the mast at Croydon was first mooted, as to whether it would be possible to operate airships in such a confined space as is available at Croydon—hemmed in as it is by houses. The past week's experiences have, however, effectually dispelled these doubts. All other airship bases have, it should be remembered, acres of clear ground in every direction.

Need for a Gas-Plant at Croydon

OWING to the heat-wave it is not thought advisable to make more than one "landing" with the airship at Croydon without returning to Pulham for re-gassing. The ship loses gas each time she is moored, and in the hot weather the loss is appreciable.

Doubtless, if the latest conference now proceeding to decide the fate of the airship succeeds in preventing them from being handed to the Disposals' Board, a gas-plant will be erected at Croydon. I am informed that there is a suitable one at Wormwood Scrubbs, and it would only require re-erection here to make Croydon into an airship base where all but big repairs could be carried out, and from which an airship service could operate for months without the necessity of the ships proceeding frequently to Pulham.

Mr. Hearn, who has his own Renault-Avro, has decided to house his machine at Croydon instead of Hendon, and it will now be available for joy-rides and "taxi" work. He is the aerial equivalent of the taxi owner-driver, doing all his own minor repairs and maintenance.

Capt. Muir, of the Surrey Flying Services, covered a distance of 700 miles during his recent three days' tour of the battle-fields, and his passengers were highly delighted with their trip.

The New Bristol Arrives

THE 10 seater Bristol biplane, with the Napier "Lion" engine, arrived at the aerodrome on Friday night. The cabin of this machine is more spacious than that of any single-engined machine on the air-lines. A particularly good feature is the amount of head-room provided; also the sliding panel in the roof.

Mr. Earl, of "Air Express," has visited Paris during the week. It would be interesting to know what this enterprising firm have in view with regard to the new subsidy scheme.

THE AIRSHIP PROBLEM

In a statement just issued by the Air Ministry upon the future of our airships, it is notified that the opportunity has been taken of the presence in London of the Dominion Prime Ministers to lay before the special Conference the full facts regarding the position of airships, with special reference to their utilisation in connection with the speeding up of communications with the Dominions.

This Conference, after having had under review the whole question, and especially the submission of the above proposals, has decided to appoint a technical and expert committee under the chairmanship of the Secretary of State for Air (consisting of Lord Gorell, M.C., U.S. of S. for Air; Air-Marshal Sir H. M. Trenchard, Bt., K.C.B., D.S.O.; Maj.-Gen. Sir F. H. Sykes, C.B.E., K.C.B., C.M.G. (representing the Air Ministry); Sir G. L. Barstow, K.C.B., representing the Treasury; Sir James Stevenson, Bt., representing the Colonial Office; Sir Ross Smith, K.B.E., representing Australia and New Zealand; Col. the Hon. H. Mentz, representing South Africa, and representatives of Canada and India; L. V. Meadowcroft, Esq., secretary) to report:—(1) On the cost of erecting masts, providing bases, and fuel supplies, upkeep, commissioning, and operating the existing fleet of airships for the purposes of Imperial air communications, with special reference to the routes between England, India, Africa, Australia and New Zealand; and (2) on services by means of aeroplanes. This Committee will meet immediately, and their report will be presented to the Imperial Conference before it comes to an end. It is the intention that, in the light of the figures thereby obtained, the Dominions should be invited to say upon what conditions and to what amount they would make a contribution; and that with this knowledge the British Government should decide whether they are prepared to ask Parliament for a subscription from the British Exchequer.

Further, in considering the question of future development, it has to be remembered that the necessary ground organisation must be established overseas and improved at home.

Whereas, during the War, ground stations for aeroplanes were naturally developed to a large extent overseas, the nature of sea warfare was such as to cause a concentration of activities after the first few months mainly in the neighbourhood of the British Isles, with the result that ground organisation for airships was developed in this country only and no stations were erected overseas which would be of use now. Moreover, before demonstration flights or commercial services to any station overseas can be brought into operation, it is necessary that the organisation required must be carefully prepared. Such opportunities as the airship has had for undertaking long-distance flights—for instance, the voyage of the German airship "L.59" from Bulgaria to the Sudan and back and the historic journey of "R.34" to and from America—have proved their capability under certain conditions.

If airship communication is to be developed within the Empire, a chain of stations consisting of two or three bases and a certain number of mooring masts will require to be formed, and proof given that regularity approximately equal to that of existing means of transport can be obtained on long-distance flights. A definite period will be required for the progressive development of routes on a clearly defined policy; this period would, it is considered, cover several years.

It has, in brief, yet to be ascertained whether an airship service can be established on commercially successful lines, and it has still to be decided whether, if this be resolved in the negative, the Governments concerned would be justified in the interests of Imperial communications in subsidising such a service.

ROYAL AIR FORCE

A MEETING of the Executive Committee was held on June 29, Lord Hugh Cecil, P.C., M.P., in the Chair. The members of the Committee present were:—Dame Helen Gwynne-Vaughan, Mrs. Barrington-Kennett, Sir Charles McLeod, Maj.-Gen. Sir Sefton Brancker, Air Vice-Marshall A. V. Vyvyan, Air-Commodore H. R. M. Brooke-Popham, H. E. Perrin, Esq., F. E. Rosher, Esq., and W. S. Field, Esq.

Grants amounting to £359 14s. 8d. since June 2 were approved.

The Memorial to those who fell in the Great War was advanced a considerable stage by the constitution of a sub-committee to deal with the whole matter, to select the architect, and if necessary, a sculptor, and to cause designs, plans, etc., to be submitted to the Executive Committee at a future early date. The sub-committee was constituted as follows:—Lord Hugh Cecil (*ex-officio*), Mrs. Barrington-Kennett, Sir John Salmond, Air-Commodore H. R. M. Brooke-Popham, and Mr. F. E. Rosher.

It was decided that the Boys' Home at Vanbrugh Castle,

MEMORIAL FUND

Blackheath, S.E., should be opened for the reception of boys selected for admission towards the latter end of August, and it was decided, further, that the ceremonial opening of the Boys' Home (which it was hoped would be carried out by the President, H.R.H. The Duke of York, K.G.) should be tentatively fixed for some date in October next.

The Committee considered various proposals for dealing with assistance to the post-War R.A.F. (officers, N.C.O.s, and airmen and their dependents), but it was felt that at the present time the only form of assistance which the Committee were prepared to undertake was that they would financially assist any special case of distress (arising from sickness only) occurring to all ranks of the post-War R.A.F., but it is hoped in course of time that such assistance may be considerably enlarged; but in view of the Memorial being essentially for the assistance of those who served and suffered during the Great War, the Committee consider they would not be justified in giving further assistance to those now serving.

THE LONDON-CONTINENTAL SERVICES

FLIGHTS BETWEEN JULY 10 AND JULY 16, INCLUSIVE

Route†	No. of flights*	No. of passengers	No. of flights carrying		No. of journeys completed†	Average flying time	Fastest time made by	Type and No. (in brackets) of Machines Flying
			Mails	Goods				
Croydon-Paris ...	43	224	13	31	39	2 50	Breguet F-ADAI (2h. 20m.)	B. (6), Bt. (1), D.H.9 (3), D.H.18 (2), G. (5), H.P. (3), Sa. (1), Sp. (5), V. (1).
Paris-Croydon ...	40	175	15	23	40	2 47	Goliath F-FHMY (2h. 12 m.)	B. (6), Bt. (1), D.H.9 (2), D.H.18 (2), G. (4), H.P. (3), Sa. (1), Sp. (2), V. (1).
Croydon-Brussels ...	11	17	6	6	10	2 30	D.H.4 G-EAXN (1h. 52m.)	D.H.4 (5), D.H.9 (1), G. (1).
Brussels-Croydon ...	9	27	6	6	9	2 50	D.H.4 O-BATO (2h. 32m.) ..	D.H.4 (3), D.H.9 (1), G. (1).
Croydon-Amsterdam ...	9	17	7	7	8	3 44	D.H.9 G-EAXG (2h. 34m.) ..	D.H.9 (1), F. (5).
Amsterdam-Croydon ...	9	17	6	7	9	3 44	D.H.9 G-EAXG (2h. 55m.) ..	D.H.9 (1), F. (6).
Totals for week ...	121	477	53	80	115			

* Not including "private" flights.

† Including certain journeys when stops were made *en route*.
 † Including certain diverted journeys.

NOTICES TO AIRMEN

Holland : Regulations Governing Imports by Air

THE Dutch Government have issued the following regulation governing imports by air into Holland:—

No goods or documents, the importation of which is prohibited, may be carried by aircraft entering Holland, unless permission has previously been obtained from the Minister of Waterstaat. This regulation applies particularly to the carrying of arms, whether attached to aircraft or included as cargo or personal baggage.

(No. 52 of 1921.)

France : Danger Zone on French Coast Terminated

NOTICE to Airmen No. 91 of the year 1920 is cancelled, the cordite burning operations at Dannes, near Etaples, having been completed.

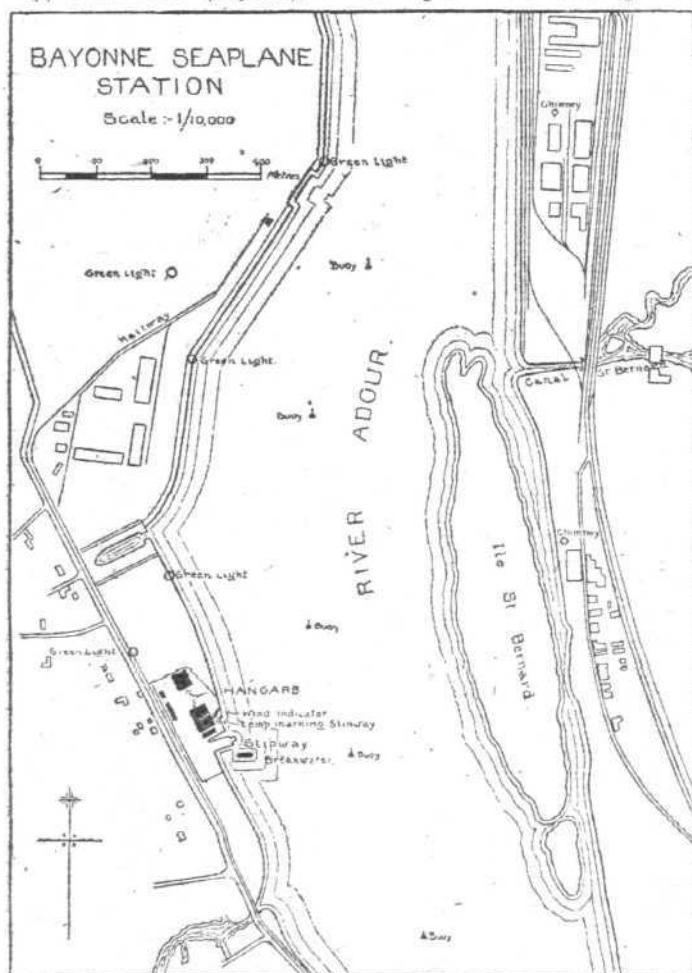
(No. 53 of 1921.)

France : Aerodromes and Customs Seaplane Stations

1. Aerodromes

■ Notice to Airmen No. 98 of the year 1920 (FLIGHT, p. 1062) is amplified and amended as follows:—

(i) BORDEAUX (Teynac). *Markings.*—The landing "T,"



formerly situated in the north corner of the ground between the hangars, has now been moved to the southern boundary of the aerodrome.

(ii) NIMES. *Markings.*—A rotatory "T" has been installed to the west of the aerial lighthouse.

(iii) VALENCIENNES. *Aerial Lighthouse.*—The aerial lighthouse is temporarily out of action, pending an alteration in its position.

Fire at Titanine Works

A SERIOUS fire broke out on Monday last at the Hendon works of Titanine, Ltd., Booth Road, Colindale. It was a terrific blaze owing to the nature of the materials, and all the Fire Brigade could hope to do was to confine the fire, which broke out in the mixing room, to the factory. The offices only were saved.

The buildings of the Titanine Company comprised offices 71 yds. by 14 yds. in area, the new and old works 92 yds. by 25 yds., a garage 30 ft. by 18 ft., and a dope store 30 ft. by 18 ft. The damage is estimated at between £15,000 and £20,000.

2. Customs Seaplane Stations

(a) Notice to Airmen No. 111 of the year 1920 (FLIGHT, p. 1127) is amplified as follows:—

(i) ANTIBES.—The French Director-General of Customs has announced that Customs clearance of seaplanes, imported from abroad by the Mediterranean, and of visiting seaplanes may be carried out at this station.

(ii) GENERAL.—Seaplanes alighting (not imported) may carry out customs formalities at the following Mediterranean ports:—Mentone, Monaco, Villefranche-sur-Mer, Nice, Cannes, Saint-Raphael, Saint Tropez, Marseilles, Saint Louis-du-Rhône, Côte and Port-Vendres.

(b) Notice to Airmen No. 18 of the year 1921 (FLIGHT, p. 129), Paragraph 2(iv), is amplified and amended as follows:—

(i) BAYONNE.—The seaplane station at Bayonne, belonging to the Service de la Navigation Aérienne, has been appointed a customs station.

The Customs office is in Bayonne. A customs officer attends at the station when requested by telephone. Only machines of a span not exceeding 24 metres (78' 9") can be accommodated.

Position.—Latitude 43° 31' N., Longitude 1° 30' W. Situated on the left bank of the river Adour, 2½ kms. W.N.W. of Bayonne, opposite the sand bank known as the Isle of St. Bernard.

Description.—The landing area is 2 km. long by 500 m. wide, lying approximately N.W.-S.E. Landing can be effected at all states of the tide. In the middle of the river, opposite the station, is a line of five iron buoys, marking the right hand side of the shipping channel.

The landing area is sheltered by hills from strong winds, but the tidal streams are strong. A breakwater, projecting into the river 50 metres above the slipway, gives rise with an ebb stream to counter currents on the slipway. These counter currents are only noticeable a few metres from the end of the slipway, and should be carefully watched by pilots taxi-ing into the slipway.

There is a depth of 3 feet of water over the end of the slipway at lowest known low water.

At the mouth of the Adour, a dangerous bar is formed by the rollers from the Atlantic. No attempt should be made to cross this bar either by taxi-ing or in tow. Pilots obliged to land on the sea should seek shelter in the bay of St. Jean de Luz, 20 kms. S.W. of Bayonne.

Obstructions.—The buoys along the middle of the river, as mentioned above; hills, approximately 160 ft. high, to the N.E. and W.; the town of Bayonne to the S.E.

Markings.—A white wind sleeve is fixed on the gable of a hangar. The entrance to the slipway is marked by a white light at night. There are no special night landing arrangements. The marine lights mentioned in the Admiralty List of Lights and Time Signals may be used as landmarks.

Accommodation, etc.—Two wooden hangars 20 by 30 by 4·6 metres—doorspace 20 metres (65 ft. 7 ins.); a larger metal hangar under construction; one masonry slipway; two cork mooring buoys, one near the slipway and the other on the opposite side of the river; petrol and oil (Castor and Renault); repair shops.

General.—Telegraphic address "Hydravions—Bayonne." Telephone No.: 6-82. The base is open from 0800 hours to 1830 hours.

(No. 54 of 1921.)

NOTICE TO GROUND ENGINEERS Over-tightening of Bracing Wires

1. THE attention of Ground Engineers is directed to the detrimental effect of over-tightening bracing wires or rods.

2. In truing up aircraft, or when making flight adjustments by means of turnbuckles, etc., great care must be exercised to ensure that no undue stress is produced in any member of the structure.

(No. 7 of 1921.)

Emir of Katsina Visits Kenley Aerodrome

THE Emir of Katsina, accompanied by his son and staff, visited Kenley Aerodrome on July 13. After a brief inspection of the station, workshops, and machines, the party witnessed some flying by officers of No. 24 Squadron. The Emir and his son and members of the staff were also given flights.

A "School" Fokker

WE learn that a new Fokker mono, has been built for instructional work, and is fitted with a 90 h.p. O.X. Curtiss engine. Instructor and pupil sit side by side, and the machine is dual-controlled. The construction of fuselage and tail is in one unit of welded steel tubes.

IN PARLIAMENT

R.A.F. Publications

Mr. E. HARMSWORTH on July 13 asked the Secretary of State for Air whether each section of the Ministry producing publications edits its own papers; if so, what are the exact duties carried out by the Central Editing Section; and whether this section is presided over by an Air Vice-Marshal?

Capt. Guest: The editing of books in the Air Ministry is normally conducted in the section concerned. At the present time, owing to the comparatively recent creation of the Royal Air Force, an abnormally large number of new books and publications is in preparation. The Central Editing Section has been instituted as a temporary measure to secure proper co-ordination of this work, more particularly in cases in which two or more Departments are jointly concerned in the preparation of a single book, since it was found that without some such central machinery cases were occurring of overlapping or inconsistent treatment of the same subject from different aspects. The section is also charged with the actual drafting of certain books dealing with air strategy and tactics and Royal Air Force administration. The answer to the third part is in the affirmative.

Mr. E. Harmsworth asked the Secretary of State for Air why the Publicity Section, known as the Information or Press Section, is still retained; and whether the duties of this Department, consisting of issuing notices to airmen and ground engineers, could more easily be carried out by the Departments which prepare them?

Capt. Guest: The Publicity and Propaganda Section, which was established at the Air Ministry during the latter part of the War, was disbanded shortly after the Armistice. As I informed my hon. and gallant friend the Member for Fylde on July 5, one official of the Department is responsible, amongst other duties, for the issue of official information to the Press. This conforms to the normal pre-War practice of Government Departments of having one channel for dealings with the Press, and is both economical and convenient. With regard to the latter part of the hon. Member's question, it is usually best to centralise, so far as possible, the work of editing and issuing Departmental publications, and I believe it to be so in this case.

Parachutes

Mr. RAPER asked what is the total number of parachutes owned by the Royal Air Force in England; and what percentage of the Royal Air Force aeroplanes and balloons, respectively, in this country are equipped with parachutes?

Capt. Guest: The answer to the first part of the question is 1,943. Owing to difficulties encountered in designing satisfactory harness, it has not yet been possible to equip more than a small number of aeroplanes with parachutes, but experiments are proceeding, and satisfactory results are expected shortly. The necessary arrangements have been made so that no avoidable delay may occur. There is only one balloon in service at present, and this is equipped with parachutes.

Nieuport Nighthawks

Mr. RAPER asked whether it is intended to use Nieuport Nighthawks now in store for the equipment of scout squadrons in the Royal Air Force; if so, when these machines were built and by whom; how long they have been in store and where; whether they were built under war emergency conditions and of war emergency material; with what engines they are fitted; and whether these engines are reliable, and who will be responsible if such machines prove a failure?

Capt. Guest: The machines in question were built in 1919 and the early part of 1920 by the Nieuport and General Company and by Messrs. Caudron, and have been in store at Leuchars for varying periods beginning with August, 1919. They were constructed under war emergency conditions of the best war emergency material, and are fitted to take an engine, which has not, so far, proved satisfactory. Trials are being carried out with other engines, and, if the results are satisfactory, it is intended to use the machines now in store.

Mr. RAPER asked whether these machines are practically identical in design with the machine on which that very gallant airman was killed yesterday; and, further, is he aware that this particular engine has never been considered a success?

Capt. Guest: I think what the hon. Member has stated rather bears out the policy of the Ministry. They may be of great service until we can get a more suitable engine.

Airships

Mr. RAPER asked what was the total cost of "R.36"; whether the dismantling of this airship will be postponed pending a possibly favourable decision from the Dominion Prime Ministers' conference regarding the desirability of expending £4,000 to £6,000 in order to repair this airship; whether the Zeppelin "L.64" was irretrievably wrecked in order to make room in the shed at Pulham for the damaged "R.36"; how much money has so

far been expended on the construction of "R.37"; how much more is required to complete this airship; and whether he will consider the possibility of utilising the £20,000 allocated in the Estimates for a mooring mast in Egypt as a grant-in-aid for the repair of "R.36," and the continued construction of "R.37"?

Capt. Guest: The total cost of the "R.36" was approximately £350,000; she is not being dismantled at present. The "L.64" was broken up in order to clear a berth for and save the damaged "R.36." £325,000 has been spent in the "R.37," and it is estimated that £25,000 would be necessary to complete her. In reply to the last part, the whole question of what is best to do with the money available in the very short period which remains before the offer expires has naturally received anxious consideration, and I have not felt justified in authorising the repair of the "R.36" or the completion of the "R.37."

Mr. RAPER: Is the right hon. gentleman aware that it is quite unnecessary to expend any more money on mooring masts in Egypt, as natural mooring masts already exist in the Pyramids, to which a swivel could be attached for a very few pounds?

Airships

CAPT. W. BENN, on July 14, asked the Secretary of State for Air what has been the total cost since the Armistice for the construction, maintenance, housing, personnel, staff, and overhead charges of airships; the number of miles flown by airships; and their estimated present capital value?

The Secretary of State for Air, Capt. Guest: It must be remembered that the Air Ministry only became responsible for the airships on October 22, 1919. It is not possible, therefore, without an expenditure in time and money out of all proportion to the value of the results obtained, to collect the information asked for in the first part of the question. Moreover, a large proportion of the expenditure was on war contracts, which would, in any case, have had to be liquidated, and the figures would need elaborate analysis according to the purpose for which they were to be used. With regard to the second part, the total number of miles flown by airships since they were handed over to the Controller-General of Civil Aviation is 12,000, the majority of the flights being in connection with mast-mooring experiments, and strictly limited as to duration. The approximate cost of the two airships ("R.33" and "R.80") now in use is £700,000.

Capt. Benn: Can the right hon. gentleman give us the information sought for in the first part of the question for the period during which the airships have been under his control? Will he also answer the last part of the question as to the present value of the airships?

Capt. Guest: I can obtain the information desired by the hon. gentleman as to what the cost has been since they were taken over by the Ministry, but it will take some days to do so. As regard an estimate of the present capital value of the ships, I am afraid it is quite beyond my capacity.

Capt. Benn: Is not the right hon. gentleman aware that a figure showing the cost of the ship is quite valueless for the purpose of the answer, and can he not give an estimate based on the cost minus any damage they have suffered?

Capt. Guest: No, sir. As regards these two, "R.33" is in perfect order, and "R.80" is the same.

Sword Equipment

CAPT. BENN asked why a sword, belt, and slings are part of the Air Force uniform, in view of the fact that no tradition attaches to the *arme blanche* in the Air service and that swords cannot be used in aerial combat?

Capt. Guest: As stated in reply to a similar question on June 15, 1920, the wearing of swords on specified occasions is at once the privilege and the duty of every officer in the service of the Crown who wears His Majesty's uniform, including the members of the Privy Council and the Corps Diplomatique. I do not see any good reason why an exception should be made in the case of the Royal Air Force.

Capt. Benn: Is it not a fact that in other arms the sword has a tradition and possesses a traditional value from history, but in the case of the Air Force it has none?

An Hon. Member: Will spurs be added to the force's uniform?

Capt. Guest: No, sir. Spurs are not worn.

Lieut. Com. Kenworthy: Can the right hon. gentleman say whether the sword is not carried by these other persons, as the descendant of the principal arm used by them in days gone by, and under the same reasoning would it not be more fitting and more dignified if the members of the Air Force carried automatic pistols?

Capt. Benn: Will the right hon. gentleman answer the question I have put? Is there not a tradition attaching to the *arme blanche* in the Army, which does not obtain in the case of the Air Force at all, and, if so, what is the value of this as part of the Air Force uniform?



PERSONALS

Married

Mr. ROBERT LORAIN, D.S.O., M.C. (late Lieut.-Col., R.A.F.)—son of the late Mr. and Mrs. Henry Loraine, was married on July 14, at St. George's, Hanover Square, to WINIFRED LYDIA, daughter of Sir THOMAS and LADY STRANGMAN, of Bombay. Air-Commodore D. le G. Pitcher was best man.

Major FRANK DOUGLAS STEVENS, O.B.E., late R.A.F., son of Mr. and Mrs. T. Stevens, Bury St. Edmunds, was married on July 7, at Sundymount Presbyterian Church to EVA MAY, youngest daughter of the late WILLIAM GORE and Mrs. GORE, Strand Road, Sandymount, Dublin.

To be Married

An engagement is announced between Mr. IDRIS MEREDYTH DAVIES (late Captain, Welch Regt. and R.A.F.), elder son of Mr. Timothy Davies, J.P., and Mrs. Davies, of Alltyferin, Carmarthenshire, and 25, Collingham Gardens, and GWENDOLINE, daughter of Mr. and Mrs. MAURICE B. O'CONNOR, of Ballygunge, St. George's Hall, Weybridge, and Ballygunge, Calcutta.

Items

Sir ARTHUR WHITTEN BROWN, we regret to learn, is at

Manchester Military Hospital, where he has been seriously ill, following an operation for appendicitis. Sir Arthur, who has recently been in China in connection with Messrs. Vickers, Ltd., was reported at the beginning of the week to be progressing better.

Col. JACQUES BALSAN, whose recent marriage to the Duchess of Marlborough was mentioned last week, is a man whose name has stood out conspicuously for many years in the realm of sport, his association with aviation being of a very practical character. Besides being a gentleman rider, he is one of the oldest balloon pilots (he held for thirteen years the height record), and one of the first aviators, having obtained his certificate before Blériot crossed the Channel.

He went through the War as pilot-commander of a group until the end of 1917, at which date he took the command of the French Aeronautic mission in London. In 1914 he was Captain Commanding the Cavalry Aviation; in 1917 he was Lieutenant-Colonel. Col. Balsan is Honorary President of the Aero Club of France; he is Chevalier of the Legion d'Honneur, has the Morocco Medal, the Croix de Guerre with two bars, and the C.M.G.

LEGAL INTELLIGENCE

Pilots and their Log-Books

AT Darlington on July 18 Mr. Charles Smith, a pilot, of the Vulcan Aviation Company, Bridlington, who made a forced descent near Darlington several weeks ago, appeared at the local police court on a summons for flying without a log-book, contrary to the Air Navigation Act.

Mr. Smith was carrying Mr. Albert Cummings, a Darlington publican, when the accident occurred, and the pilot's omission was discovered by the police. It was stated that the log-book was usually carried under the pilot's seat, and Mr. Smith pleaded that the book was left on the aviation field at Bridlington inadvertently.

A fine of £2 was imposed. Mr. Smith was informed that he was liable to a penalty of £200.

A JOINTING MATERIAL

THOSE wide-awake folk, the Patent Motor Products Co., of 20, Store Street, Tottenham Court Road, W.C. 1, always light on to a real good thing. This time it is the original L'Hermetical (known in France as L'Hermetic), which proved its value during the War, as a jointing material for motors, gear-boxes, etc. It is a heavy liquid solution which, applied with the aid of a brush, to the two surfaces of a joint or to the two sides of a paper washer, forms a joint which has all the advantages of a rubber joint without its drawbacks and is proof against air, dust, water and oil. L'Hermetical is not merely useful; it is a necessity.

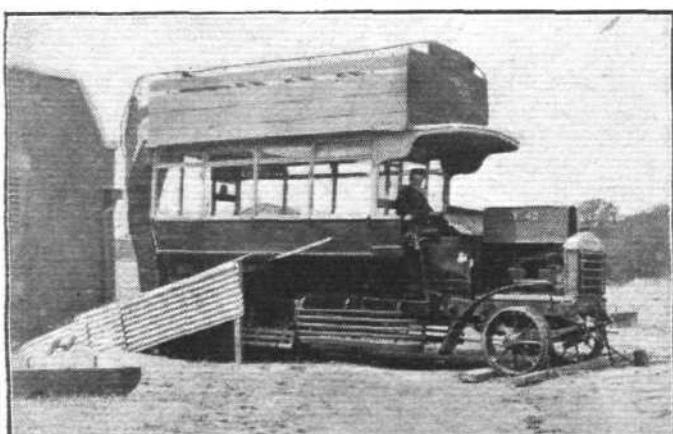
Although handicapped with the throttling proof-alcohol Government duty, Mr. Hawkes, the managing director, has got over all difficulties, and can now supply L'Hermetical, in any quantities, at a wonderfully low price, to the trade, etc. This is the real original jointing material which has demonstrated its quality under severe tests, and it is now being standardised for use by several prominent British manufacturers. In view of this Mr. Hawkes has taken the bull by the horns and actually started the manufacture of the stuff in England, under the direct supervision of the inventor. The factory is now in full swing, and we congratulate Mr. Hawkes upon his enterprise.

So successful has L'Hermetical proved that imitations have appeared on the market. It is therefore as well, just to ensure that the *original* article is supplied, to see that the trade-mark is on every tin. A facsimile of the label is reproduced herewith. L'Hermetical is put up in three sizes, the contents ranging from $\frac{1}{4}$ lb. to 2 lbs.



SIDE-WINDS

MESSRS. S. E. SAUNDERS, LTD., of East Cowes, Isle of Wight, who not very long ago disentangled themselves from the tangled skein of militant trades unionism by closing down for a week or more and then re-opening as a non-union concern, seem to be profiting by their well-considered action. As stated at the time, practically all their best men "carried on," and were glad to under the new conditions. Since then affairs



An old motor-bus "does its bit" during the coal shortage, at the Hamble factory of A. V. Roe and Co., Ltd., by driving a saw-mill—through two holes knocked in the wall.

have so settled down that everybody concerned appears to be equally happy under the newly organised régime. So much so that a highly successful sports meeting and fête has just been most harmoniously carried through on the firm's sports ground, E. Cowes, gotten up by the firm's Social and Athletic Club in aid of the Frank James Memorial Cottage Hospital, E. Cowes. A very fine list of entries resulted for the sports from Southampton, Portsmouth, and all over the island, all the events being very keenly contested, and producing an excellent afternoon's sport. About 1,800 people passed through the gates, the total receipts amounting to £61 14s., which has been handed over to the Hospital. The full band of the 1st Batt. Royal Ulster Rifles, from Parkhurst, I.W., played from 2 p.m. till 10 p.m., and the meeting, which was in every way a great success, reflects the greatest credit on the employés who participated in its organisation, one and all of whom entered into the spirit of the event with marked enthusiasm.

ONCE again the Claudel Hobson carburettor, which has gained so many laurels in the past for excellence and efficiency, has proved its superiority by gaining the first and third places in the Aerial Derby, which took place on Saturday last round London. Such a strenuous race means nothing must be left to chance, hence the use of the Claudel Hobson. Previous successes of this carburettor are far too numerous to mention here. Both aircraft engine and motor-car builders would do well to investigate the merits and claims of the Claudel Hobson, where not being standardised at present.

IN connection with the Aerial Derby flown last Saturday it is of interest to note that once more the popularity of Smith instruments and K.L.G. sparking plugs was demonstrated. We understand that every machine in the race was fitted with Smith speed indicators and K.L.G. plugs. The winner of the Derby, the Mars I, piloted by Mr. J. H. James, was particularly well equipped with products of Messrs. S. Smith and Sons, Ltd., carrying the following Smith instruments: Air-speed indicator, revs. indicator, radiator thermometers, pressure gauges, altimeter, density gauge, compass, clock, clinometers, etc. The Napier "Lion" was fitted with K.L.G. F.15 sparking plugs, and these, we learn, gave no trouble whatever.

THE win of Mr. James's Mars I in the Aerial Derby added one more to the honours won by Emaillite doped machines. Mars I was doped with the famous Emaillite Aeroplane Doping Scheme X, which, it may be recalled, was prepared, immediately after the War, by Mr. H. Bayley, the General Manager of the Company, to embody the results of the Company's extensive research work, especially the highest grade acetyl cellulose dope and the improved pigmented protective covering of the oil varnish type.

NOTICE TO ADVERTISERS

All Advertisement Copy and Blocks must be delivered at the Offices of "FLIGHT," 36, Great Queen Street, Kingsway, W.C. 2, not later than 12 o'clock on Saturday in each week for the following week's issue.

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